

In the Matter of the Application of)
)
HAWAII ELECTRIC LIGHT COMPANY, INC.) DOCKET NO. 2017-0122
)
For Approval of a Power Purchase)
Agreement for Renewable Dispatchable)
Firm Energy and Capacity.)
)

DISSENTING OPINION OF LEODOLOFF R. ASUNCION, JR., COMMISSIONER

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DISSENT OF LEODOLOFF R. ASUNCION, JR., COMMISSIONER	

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF HAWAII

In the Matter of the Application of))	
HAWAII ELECTRIC LIGHT COMPANY, INC.))	DOCKET NO. 2017-0122
For Approval of a Power Purchase))	
Agreement for Renewable Dispatchable))	DECISION AND ORDER NO. 38395
Firm Energy and Capacity.))	
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DECISION AND ORDER

By this Decision and Order,¹ the Public Utilities Commission ("Commission") denies HELCO's Letter Request, filed May 9, 2017, in Docket No. 2012-0212,² for approval of the

¹The Parties to this docket are HAWAII ELECTRIC LIGHT COMPANY, INC. ("HELCO"), HU HONUA BIOENERGY, LLC ("Hu Honua") (collectively, HELCO and Hu Honua are referred to as "Applicants"), and the DIVISION OF CONSUMER ADVOCACY ("Consumer Advocate"). The Commission has also granted Participant status to LIFE OF THE LAND ("LOL"), TAWHIRI POWER, LLC ("Tawhiri") and HAMAKUA ENERGY, LLC ("Hamakua"). See Order No. 34554, "Opening a Docket to Review and Adjudicate Hawaii Electric Light Company, Inc.'s Letter Request for Approval of Amended and Restated Power Purchase Agreement, Filed in Docket No. 2012-0212 on May 9, 2017," filed May 17, 2017 ("Order No. 34554"). By letter filed January 12, 2022, Hamakua notified the Commission that it was withdrawing from this proceeding.

²Pursuant to Order No. 34556, "Transferring Request for Approval of Amended and Restated Power Purchase Agreement from Docket No. 2012-0212 to Docket No. 2017-0122," filed May 18, 2017, in Docket No. 2012-0212 ("Order No. 34556"), HELCO's Letter Request was transferred to this docket.

Amended and Restated Power Purchase Agreement dated May 5, 2017 ("Amended PPA")³ between HELCO and Hu Honua to purchase energy and capacity from Hu Honua's biomass facility on Hawai'i island (the "Project").

In so doing, the Commission finds that: (1) the Project will result in significant GHG emissions; and (2) Hu Honua's proposed "carbon commitment" ("Carbon Commitment") to sequester more GHG emissions than are produced by the Project relies on speculative assumptions and unsupported assertions. As a result, the Commission is not convinced that the Project will reduce GHG emissions, and has concerns about the potentially significant long-term environmental and public health impacts of the Project if the Amended PPA is approved.

In addition, the Commission finds that the Amended PPA is likely to result in high costs to ratepayers, both through its relatively high cost of electricity and through the potential displacement of other, lower cost, renewable resources. In comparison, the Project is not expected to deliver unique benefits to HELCO's system, nor it is urgently required at

³Hawaii Electric Light Company, Inc.'s Amended and Restated Power Purchase Agreement dated May 5, 2017," filed May 9, 2017. HELCO submitted the Amended PPA as "Exhibit A" to a written letter request to the Commission, filed May 9, 2017. The cover letter shall be referred to herein as "HELCO Letter Request," and the Amended PPA as Exhibit A shall be referred to as the "Amended PPA."

this time. Upon weighing these considerations, the Commission concludes, based on the record before it, that approving the Amended PPA is not prudent or in the public interest and denies HELCO's Letter's Request.

The Commission's reasoning is discussed in further detail below.

I.

BACKGROUND

The history of the Project is extensive and spans multiple dockets and several Hawai'i Supreme Court ("Court") appeals. For purposes of this Decision and Order, the Commission highlights relevant key events; however, a full record of this proceeding can be found on the Commission's electronic Document Management System, available at <https://dms.puc.hawaii.gov/dms/PUC.jsp>, and entering "2017-0122" in the "Docket Quick Link" field.

On May 17, 2017, the Commission issued Order No. 34554, which opened Docket No. 2017-0122 for the purpose of receiving, reviewing, and adjudicating HELCO's Letter Request (the following day, May 18, 2017, the Commission issued Order No. 34556 in

Docket No. 2012-0212, which transferred HELCO's Letter Request from Docket No. 2012-0212 to this docket).⁴

In addition, the Commission, on its own motion, named Hu Honua as a party to this proceeding.⁵ Order No. 34554 also granted Participant status to Tawhiri, Hamakua, and LOL.⁶ The Commission subsequently ruled that Tawhiri, Hamakua, and LOL's scope of participation included whether the Amended PPA was prudent and in the public interest; further, LOL was also granted permission to participate on the additional sub-issue of whether the energy price components in the Amended PPA properly reflect the cost of biomass fuel supply.⁷

On July 28, 2017, the Commission issued Decision and Order No. 34726, which approved the Amended PPA ("Amended PPA D&O").

⁴See Order No. 34554, "Opening a Docket to Review and Adjudicate Hawaii Electric Light Company, Inc.'s Letter Request for Approval of Amended and Restated Power Purchase Agreement, Filed in Docket No. 2012-0212 on May 9, 2017," filed on May 17, 2017 ("Order No. 34554"); and Docket No. 2012-0212, Order No. 34556, "Transferring Request for Approval of Amended and Restated Power Purchase Agreement from Docket No. 2012-0212 to Docket No. 2017-0122," filed on May 18, 2017.

⁵Order No. 34554 at 11.

⁶Order No. 34554 at 13.

⁷Order No. 34597, "Establishing a Procedural Schedule, Statement of Issues, and Scope of Participation for Participants," filed June 6, 2017.

LOL filed an appeal of the Amended PPA D&O to the Court and, on May 10, 2019, following briefing and oral argument, the Court vacated the Amended PPA D&O and remanded the matter back to the Commission.⁸ In particular, the Court held that the Commission had not "explicitly considered the reduction of GHG emissions in approving the Amended PPA, as required by statute, and that the [Commission] denied LOL due process with respect to the opportunity to be heard regarding the impacts that the Amended PPA would have on LOL's right to a clean and healthful environment."⁹

On June 20, 2019, pursuant to the Court's decision, the Commission issued Order No. 36382, which re-opened this docket for further proceedings to review the Amended PPA.¹⁰

On July 9, 2020, the Commission issued Order No. 37205, in which the Commission found that HELCO had not sufficiently supported its request for a waiver for the Project from the Competitive Bidding Framework.¹¹ Although the Commission had

⁸See In the Matter of Haw. Elec. Light Co., Inc., 145 Hawaii 1, 445 P.3d 673 (2019) ("HELCO I").

⁹HELCO I, 145 Hawaii at 5, 445 P.3d at 677.

¹⁰Order No. 36382, "Reopening Docket," June 20, 2019 ("Order No. 36382").

¹¹See Order No. 37205, "Denying Hawaii Electric Light Company, Inc.'s Request for a Waiver and Dismissing Letter Request for Approval of Amended and Restated Power Purchase Agreement," filed on July 9, 2020 ("Order No. 37205").

previously approved HELCO's request for a waiver for the Project, the Commission concluded that this approval had been voided, along with the rest of the Amended PPA D&O, based on the Court's ruling in HELCO I.¹² As a result, upon reviewing this issue on remand, the Commission denied HELCO's request for a waiver for the Project.¹³ Concomitantly, the Commission concluded that consideration of the merits of the Amended PPA was moot and dismissed HELCO's request for approval of the Amended PPA as such.¹⁴

Hu Honua subsequently filed for reconsideration of Order No. 37205 on July 20, 2020.¹⁵ On September 9, 2020, the Commission issued Order No. 37306, denying Hu Honua's request for reconsideration.¹⁶

¹²See Order No. 37205 at 26-27.

¹³See Order No. 37205 at 38-42.

¹⁴Order No. 37205 at 43.

¹⁵"Hu Honua Bioenergy, LLC's Motion for Reconsideration of Order No. 37205, Issued July 9, 2020; Memorandum in Support of Motion; Affidavit of Jon Miyata; Affidavit of Eli Katz; Exhibit 1; and Certificate of Service," filed on July 20, 2020; and "Hu Honua Bioenergy, LLC's Supplemental Memorandum in Support of Hu Honua Bioenergy LLC's Motion for Reconsideration of Order No. 37205, Issued July 9, 2020; Affidavit of Jonathan Jacobs; Affidavit of Bruce Plasch; and Certificate of Service," filed on July 20, 2020.

¹⁶Order No. 37306, "(1) Denying Hu Honua Bioenergy, LLC's Motion for Reconsideration of Order No. 37205, Issued July 9, 2020; and (2) Addressing Related Procedural Motions," filed on September 9, 2020 ("Order No. 37306").

Thereafter, Hu Honua appealed Order Nos. 37205 and 37306 to the Court, and, on May 24, 2021, following briefing and oral argument, the Court vacated Order Nos. 37205 and 37306 and remanded the matter to the Commission.¹⁷ In particular, the Court held that the Commission had misinterpreted the Court's ruling in HELCO I by revisiting the issue of HELCO's request for a waiver for the Project from the Competitive Bidding Framework, and instead should have focused on reviewing the Amended PPA in a manner that respected LOL's due process rights.¹⁸ As a result, the Court remanded this matter back to the Commission with the explicit instructions that the Commission's proceedings:

[M]ust afford LOL an opportunity to meaningfully address the impacts of approving the Amended PPA on LOL's members' right to a clean and healthful environment, as defined by HRS Chapter 269. The hearing must also include express consideration of GHG emissions that would result from approving the Amended PPA, whether the cost of energy under the Amended PPA is reasonable in light of the potential for GHG emissions, and whether the terms of the Amended PPA are prudent and in the public interest, in light of its potential hidden and long-term consequences.¹⁹

On June 30, 2021, the Commission issued Order No. 37852, which re-opened this proceeding to comply with the Court's

¹⁷See In the Matter of Haw. Elec. Light Co., Inc., 149 Hawaii 239, 487 P.3d 708 (2021) ("HELCO II").

¹⁸See HELCO II, 149 Hawaii at 241-242, 487 P.3d at 710-711.

¹⁹HELCO II, 149 Hawaii at 242, 487 P.3d at 711 (citing HELCO I, 145 Hawaii at 26, 445 P.3d at 698).

directives in HELCO II.²⁰ In pertinent part, Order No. 37852 established a Statement of Issues on remand, as well as a procedural schedule. Subsequently, Tawhiri, LOL, Hu Honua, and the Consumer Advocate submitted filings addressing the Statement of Issues.²¹

On August 11, 2021, the Commission issued Order No. 37910, which, in pertinent part, denied LOL's, Tawhiri's, and Hu Honua's respective requests to modify the Statement of Issues, but adopted a slight modification to the Statement of Issues in response to the Consumer Advocate's request.²²

²⁰See Order No. 37852, "Reopening the Docket," filed on June 30, 2021 ("Order No. 37852").

²¹"Tawhiri Power LLC's Motion for Reconsideration of Order No. 37852, Filed on June 30, 2021; Memorandum in Support of Motion; and Certificate of Service," filed on July 12, 2021; "Life of the Land's Motion for Reconsideration/Clarification of Order No. 37852 or in the Alternative to Rescind the 2017 Waiver of the Competitive Bidding Framework; Memorandum in Support of Motion; and Certificate of Service," filed on July 12, 2021; "Hu Honua Bioenergy, LLC's Motion for the Commission to Consider Act 82 and Address Its Impact on Order No. 37852 Reopening Docket; Memorandum in Support of Motion; and Certificate of Service," filed on July 20, 2021 ("Hu Honua Act 82 Motion"); "Division of Consumer Advocacy's Motion for Leave to Respond [to Tawhiri's and LOL's motions]," filed on July 23, 2021; and Letter From: Consumer Advocate To: Commission Re: Docket No. 2017-0122 - Re Hu Honua Bioenergy, LLC's Motion for the Commission to Consider Act 82 and Address Its Impact on Order No. 37852 Reopening Docket, filed on July 23, 2021.

²²Order No. 37910, "(1) Denying Life of the Land's Motion for Reconsideration/Clarification of Order No. 37852 Filed July 12, 2021; (2) Denying Tawhiri Power LLC's Motion for Reconsideration of Order No. 37852, Filed on June 30, 2021,

Pursuant to the procedural schedule set forth in Order No. 37852, the Parties and Participants exchanged information requests ("IRs") through August 2, 2021.²³

On September 16, 2021, the Parties and Participants submitted their Prehearing Testimonies and Exhibits.²⁴

Filed July 12, 2021; (3) Denying Hu Honua Bioenergy, LLC's Motion for the Commission to Consider Act 82 and Address Its Impact on Order No. 37852 Reopening Docket Filed July 20, 2021; (4) Partially Granting the Division of Consumer Advocacy's Motion for Leave to Respond Filed July 23, 2021; and (5) Dismissing All Other Related Procedural Motions," filed August 11, 2021 ("Order No. 37910").

²³See Order No. 37852 at 12. Responses to IRs are designated in this Decision and Order as follows: "[Party/Participant] Response to XX-IR-XX." The filing date of an IR responses will only be noted in the first instance of use.

²⁴See "Tawhiri Power LLC's Prehearing Testimony; and Certificate of Service," filed on September 16, 2021 ("Tawhiri Prehearing Testimony"); "Life of the Land's Testimony, Verification, Exhibits; and Certificate of Service (including Attachments 1-24), filed on September 16, 2021 ("LOL Prehearing Testimony"); "Hu Honua Bioenergy, LLC's Prehearing Testimonies; Exhibits 'Hu Honua-100' - 'Hu Honua-800'; and Certificate of Service," filed on September 16, 2021 ("Hu Honua Prehearing Testimony"); Letter From: K. Katsura To: Commission Re: Docket No. 2017-0122 - Hawai'i Electric Light Company, Inc. Amended and Restated PPA with Hu Honua Bioenergy, LLC; Hawai'i Electric Light Company, Inc.'s Updated Prehearing Testimonies and Exhibits, filed on September 16, 2021 ("HELCO Prehearing Testimony"); and "Division of Consumer Advocacy's Submission of Prehearing Testimonies and Exhibits," filed on September 16, 2021 ("CA Prehearing Testimony").

On September 17, 2021, the Consumer Advocate submitted the portions of its Prehearing Testimony containing confidential and restricted material. The Consumer Advocate clarified that while it had been unable to file these sealed portions along with the rest of its Prehearing Testimony on September 16, 2021, it had provided the parties and participants with copies of these portions on September 16, 2021. Letter From: Consumer Advocate To:

During October and November 2021, the Parties and Participants exchanged IRs and supplemental IRs ("SIRs")²⁵ on each other's Prehearing Testimonies.

On December 7, 2021, the Commission issued Order No. 38104, which granted, in part, the Consumer Advocate's request to modify the procedural schedule and extend the deadline for submission of Prehearing Statements of Position ("PSOPs"), as well as all other remaining deadlines.²⁶

On December 21, 2021, consistent with the modified schedule set forth in Order No. 38104, the Parties and Participants filed their PSOPs.²⁷

Commission Re: Docket No. 2017-0122 - Application of Hawaii Electric Light Company, Inc. for Approval of a Power Purchase Agreement for Renewable Dispatchable Firm Energy and Capacity, filed on September 17, 2021.

²⁵References to SIRs are designated in this Decision and Order as follows: "[Party/Participant] Response to XX-SIR-XX." The filing date of an SIR responses will only be noted in the first instance of use.

²⁶Order No. 38104, "Granting, with Modifications, the Division of Consumer Advocacy's Motion for Enlargement of Time Filed on December 3, 2021," filed on December 7, 2021, ("Order No. 38104"). The Commission clarified that it was unable to grant the Consumer Advocate's requested changes in full due to conflicts with preexisting events on the Commission's schedule. Id. at 6-7.

²⁷"Hawai'i Electric Light Company, Inc.'s Prehearing Statement of Position; and Certificate of Service," filed on December 21, 2021 ("HELCO PSOP"); "Tawhiri Power LLC's Prehearing Statement of Position; Exhibits 'A' and 'B'; and Certificate of Service," filed on December 21, 2021 ("Tawhiri PSOP"); "Life of the Land's Pre-Hearing Statement of Position,

On January 3, 2022, Hu Honua filed a motion to continue the evidentiary hearing, which was scheduled for the week of January 31, 2022.²⁸ Hu Honua sought to continue the hearing "until such time that the City and County of Honolulu's ongoing state of emergency or disaster period has ended (or when there are no restrictions to holding the Hearing in-person) such that the Hearing can be conducted in-person, and not virtually."²⁹

Verification; and Certificate of Service," filed on December 21, 2021 ("LOL PSOP"); and "Hu Honua Bioenergy, LLC's Prehearing Statement of Position; Exhibits '1' - '4'; and Certificate of Service," filed on December 21, 2021 ("Hu Honua PSOP").

On December 28, 2021, the Consumer Advocate filed a letter with the Commission noting that although it electronically filed its PSOP on December 21, 2021, it was not reflected on the Commission's Document Management System, and thus, in an abundance of caution, the Consumer Advocate was re-submitting its PSOP. Letter From: Consumer Advocate To: Commission Re: Docket No. 2017-0122 - In the Matter of the Application of Hawaii Electric Light Company, Inc. of a Power Purchase Agreement for Renewable Dispatchable Firm Energy and Capacity, filed on December 28, 2021 ("CA PSOP"). The Commission credits the Consumer Advocate's representations that it filed its PSOP on December 21, 2021, and thus, notwithstanding its resubmittal on December 28, 2021, considers the Consumer Advocate's PSOP timely filed.

On January 3, 2022, the Consumer Advocate filed an errata to its PSOP, which incorporated changes based on its supplemental response to HHB-CA-SIR-16, which it also filed on January 3, 2022.

²⁸Hu Honua Bioenergy, LLC's Motion to Continue Hearing; Memorandum in Support of Motion; and Certificate of Service," filed on January 3, 2022 ("Hu Honua Motion to Continue").

²⁹Hu Honua Motion to Continue at 1.

On January 6, 2022, the Commission issued Order No. 38169, which denied Hu Honua's Motion to Continue.³⁰ In doing so, the Commission noted, inter alia, that Hu Honua had not previously raised objections with the hearing date or virtual format, and that its request essentially amounted to an indefinite delay of the evidentiary hearing, which would correspondingly delay resolution of this proceeding, and would not be in the public interest.³¹

The following day, January 4, 2022, Hu Honua filed another motion styled as a motion to "confirm" that HRS § 269-6(b), "as amended by Act 82, applies to this proceeding."³² The Commission addressed Hu Honua's Second Act 82 Motion on January 31, 2022, through Order No. 38183, in which the Commission affirmed that it would apply the version of HRS § 269-6(b) currently in effect, i.e., the amended version, but clarified that the Commission had previously addressed this issue and "does not find that Act 82 materially changes the Commission's review of the

³⁰Order No. 38169, "Denying Hu Honua Bioenergy, LLC's Motion to Continue Hearing," filed January 6, 2022 ("Order No. 38169").

³¹See Order No. 38169 at 6-12.

³²"Hu Honua Bioenergy, LLC's Motion to Confirm that Hawaii Revised Statutes Section 269-6(b), as Amended by Act 82, Applies to this Proceeding; Memorandum in Support of Motion; and Certificate of Service," filed on January 4, 2022 ("Hu Honua Second Act 82 Motion").

Project under HRS § 269-6(b) or otherwise alter the applicability and holdings in HELCO I and HELCO II to this remanded proceeding.”³³

On January 14, 2022, the Commission held a Prehearing Conference with the Parties and Participants, which was reflected in Prehearing Conference Order No. 38188, filed on January 19, 2022.³⁴

On January 24, 2022, Hu Honua filed a Notice of Appeal with the Court, challenging the Commission’s denial of Hu Honua’s Motion to Continue and Second Act 82 Motion.³⁵ As a result, on January 26, 2022, the Commission issued Order No. 38198, suspending the docket pending resolution of Hu Honua’s appeal.

On February 4, 2022, the Court dismissed Hu Honua’s appeal.³⁶ As a result, on February 7, 2022, the Commission issued Order No. 38215, which lifted the docket suspension and amended

³³Order No. 38183, “Addressing Hu Honua Bioenergy, LLC’s Motion Regarding Applicability of HRS Section 269-6,” filed on January 13, 2022 (“Order No. 38183”), at 1-2.

³⁴Prehearing Conference Order No. 38188, filed on January 19, 2022 (“Prehearing Conference Order”).

³⁵See Order No. 38198, “Suspending the Docket,” filed on January 26, 2022 (“Order No. 38198”).

³⁶See Order No. 38215, “Lifting Docket Suspension and Modifying the Procedural Schedule,” filed on February 7, 2022, at 3 (citing SCOT-22-0000024, In re Hawai’i Elec. Light Co., Inc., “Order Granting Appellee Life of the Land’s Motion to Dismiss Appeal for Lack of Appellate Jurisdiction,” filed on February 4, 2022).

the procedural schedule to hold the evidentiary hearing on March 1-4, 2022.³⁷

The Commission held an evidentiary hearing on March 1-4, and March 7, 2022.³⁸

On March 29, 2022, pursuant to the modified schedule set forth in Order No. 38215, the Parties and Participants filed their Post-Hearing Briefs.³⁹

Pursuant to the procedural schedule, as originally set forth in Order No. 37852, and as modified through Order Nos. 38104 and 38215, there are no procedural steps remaining, and this matter is ready for decision-making.

³⁷Order No. 38215 at 3. See also, "Amended Notice of Evidentiary Hearing," filed on February 7, 2022.

³⁸Recordings of the hearing are available on the Commission's YouTube webpage. See Letter From: Commission To: Service List Re: Docket No. 2017-0122 - For Approval of a Power Purchase Agreement for Renewable Dispatchable Firm Energy and Capacity - Notice of Hearing Recording, filed on March 8, 2022.

³⁹"Life of the Land's Post Evidentiary Hearing Brief; and Certificate of Service," filed on March 29, 2022 ("LOL Post-Hearing Brief"); "Hawaii Electric Light Company, Inc.'s Post-Hearing Brief; and Certificate of Service," filed on March 29, 2022 ("HELCO Post-Hearing Brief"); "Hu Honua Bioenergy, LLC's Post-Hearing Brief; Exhibits 'A' - 'F'; and Certificate of Service," filed on March 29, 2022 ("Hu Honua Post-Hearing Brief"); "Tawhiri Power LLC's Post-Hearing Brief; and Certificate of Service," filed on March 29, 2022 ("Tawhiri Post-Hearing Brief"); and "Division of Consumer Advocacy's Post-Hearing Brief; and Certificate of Service," filed on March 29, 2022 ("CA Post-Hearing Brief").

II.

PARTIES AND POSITIONS

A.

HELCO

HELCO supports approval of the Amended PPA. HELCO notes that the Commission approved the Amended PPA in 2017, and since that time, the terms have not changed and the previously recognized benefits from implementation of the Project may still be realized.⁴⁰

HELCO asserts that the Project will provide the following benefits: an increase in renewable energy on HELCO's system without an increase in intermittent renewable energy; addition of firm and dispatchable renewable generation in the near-term; performance and operational features similar to HELCO's existing steam generators; an alternate fuel source to existing units that is less vulnerable to weather- and climate-related reliability concerns; the displacement of fossil fuel generation; and other community benefits related to agricultural jobs and vegetation management.⁴¹

In support of its position, HELCO submitted testimony and exhibits discussing the Amended PPA, including changes from

⁴⁰See HELCO PSOP at 2.

⁴¹See HELCO PSOP at 37.

the original PPA approved in Docket No. 2012-0212, as well as various analyses to support the purported benefits of the Project, including estimates of its contribution to the State's Renewable Portfolio Standards ("RPS"), the amount of energy expected to be produced by the Project over the Amended PPA's 30-year term, a comparison of HELCO's resource plan with and without the Project (which is used to model production scenarios), estimated net revenue requirement impact, estimated avoided fuel consumption, estimated total revenue requirement associated with the Project, a customer bill impact analysis, and a GHG emissions analysis for the Project.⁴²

Subsequently, in response to a Commission IR, HELCO updated some of its analyses to take into account recent

⁴²See HELCO Prehearing Testimony, T-1 (Rebecca Dayhuff Matsushima) (regulatory history of the Project, changes reflected in Amended PPA, and information regarding Hu Honua's request for preferential rates); T-2 (Christopher Lau) (methodology for estimating Project's RPS contributions) and Exhibit HELCO-201; T-3 (Robert Y. Uyeunten) (methodology for estimating Project's impact to HELCO's system, including avoided fuel use, changes to system costs, net present value of revenue requirements, and estimated customer bill impacts) and Exhibits HELCO-301, HELCO-303, HELCO-304, and HELCO-305; T-4 (Karin Kimura) (GHG analysis performed by Ramboll); and T-5 (Abigail Kirchofer) (methodology utilized by Ramboll to estimate Project GHG emissions) and Exhibit HELCO-501. As discussed below, the GHG analysis for the Project is composed of several different studies, including an avoided emissions analysis prepared by HELCO's consultant, supplemented by Project emissions analyses prepared by Hu Honua's consultants.

developments, particularly the withdrawal of the Puako Solar project on Hawai'i Island.⁴³

HELCO asserts that there are "only two remaining, limited issues before the Commission at this time: (1) completing sufficient analysis of the impacts of the Project on [GHG] emissions; and (2) allowing participant Life of the Land a full opportunity to meaningfully participate in this docket."⁴⁴ HELCO asserts that these issues have been addressed in the docket record.⁴⁵

Regarding the Project's GHG emissions, HELCO points to the Avoided GHG Emissions analysis prepared by its consultant, Ramboll US Corporation ("Ramboll"), which estimates the avoided lifecycle GHG emissions associated with operating the Project;

⁴³See HELCO Response to PUC-HELCO-IR-17.b. HELCO provided its response to this IR in two parts. HELCO initially responded on November 17, 2021, with updates to all studies except for Exhibit HELCO-501 (i.e., the GHG analysis for the Project). On November 29, 2021, HELCO submitted an updated version of Exhibit HELCO-501, which contained an updated GHG analysis. For clarity, this Decision and Order shall refer to HELCO's November 22, 2017 filing as "HELCO Response to PUC-HELCO-IR-17," and HELCO's November 29, 2021 filing as "HELCO Supplemental Response to PUC-HELCO-IR-17."

⁴⁴HELCO PSOP at 3.

⁴⁵See HELCO PSOP at 3.

i.e., the reduction in GHG emissions that would result from HELCO's fossil fuel units if the Project is not placed into service.⁴⁶

Ramboll's avoided lifecycle GHG emissions analysis relied on avoided fuel consumption data provided by HELCO. HELCO estimated the quantity of fuel (MMBtu) by fuel type by estimating the amount of energy that would be generated by each of its powerplants using the PLEXOS software model with and without the Project. Ramboll's estimates of avoided lifecycle emissions for each Project stage is summarized in Table 1 below:

TABLE 1 Results of Avoided GHG Emissions Analysis Prepared by Ramboll⁴⁷		
Project Stage	Avoided GHG Intensity	Avoided GHG Emissions
	(kg CO₂e / MWh)	(MT CO₂e)
Avoided Upstream	117	347,479
Avoided Transportation	15	44,084
Avoided Operations ³	351	1,042,680
Avoided Lifecycle	483	1,434,243

⁴⁶See HELCO Prehearing Testimony, T-5 (Abigail Kirchofer) at 4. As noted in the footnotes above, HELCO initially submitted Ramboll's GHG analysis as part of HELCO's Pre-Hearing Testimony, Exhibit HELCO-501, but subsequently submitted an updated version as part of HELCO Supplemental Response to PUC-HELCO-IR-17.b, Attachment 3.

⁴⁷See HELCO Supplemental Response to PUC-HELCO-IR-17.b, Attachment 3.

Ramboll then combined this avoided GHG emissions estimate with the Project's estimated lifecycle GHG emissions, calculated by Hu Honua's consultant, Environmental Resources Management ("ERM"), to reach an overall conclusion that the Project will result in a net reduction of 1,464,742 metric tons of carbon dioxide equivalents ("MT CO₂e").⁴⁸ HELCO maintains that the Ramboll Analysis satisfies the Court's mandate that the Commission explicitly consider the Project's GHG emissions, pursuant to its statutory duties under HRS Chapter 269, and demonstrates that the Project will "significantly reduce GHG emissions in our planet's atmosphere."⁴⁹

HELCO contends that "no substantive testimony was raised by any party or participant questioning the methodology of the [Ramboll Analysis]," and that the Ramboll Analysis concludes that

⁴⁸See HELCO Supplemental Response to PUC-HELCO-IR-17.b, Attachment 3 (ERM's updated analysis is included as "Attachment B" to Ramboll's updated GHG analysis) (the avoided GHG emissions analysis, as well as total GHG impact estimate submitted by Ramboll, is referred to as the "Ramboll Analysis," while the specific Project analysis performed by ERM is referred to as the "ERM Analysis").

The ERM Analysis also relied upon GHG emissions associated with Project construction, which were independently calculated by another Hu Honua consultant, JPB, LLC ("JPB"). The results of JPB's analysis were incorporated into the ERM Analysis. See Hu Honua Prehearing Testimony, T-6 (Joshua Pearson), and Exhibit Hu Honua-601; and HELCO Supplemental Response to PUC-HELCO-IR-17.b, Attachment 3 at 52 (referencing the "2021 JPB report for construction emission calculations").

⁴⁹HELCO Post-Hearing Brief at 11.

approval of the Project "would result in a significant reduction in lifecycle and Project GHG Emissions, relative to the baseline without the Project."⁵⁰ HELCO responds to concerns raised by the Consumer Advocate, LOL, and Tawhiri in turn, asserting that none of them had produced any credible evidence to discredit the Ramboll Analysis.⁵¹

Regarding LOL's opportunity to participate in this proceeding, HELCO asserts that LOL has been provided with a meaningful opportunity to be heard regarding "the [Amended] PPA's impact on LOL's property interest in a clean and healthful environment, as defined by HRS Chapter 269."⁵² Specifically, HELCO maintains that LOL has been "afforded a robust opportunity" as demonstrated by LOL's "expanded participation to include all issues in this Docket," and "by way of information requests, pre-hearing briefing, the evidentiary hearing, and post-hearing briefing."⁵³

HELCO argues that other evidence in the record that is outside the scope of the two above issues should not be

⁵⁰See HELCO Post-Hearing Brief at 9-10.

⁵¹See HELCO Post-Hearing Brief at 12-15.

⁵²HELCO Post-Hearing Brief at 16.

⁵³HELCO Post-Hearing Brief at 17.

given weight in this decision.⁵⁴ Specifically, HELCO argues that because the Amended PPA's pricing has not changed since the Amended PPA D&O, re-visiting the pricing now, in light of the Court's remand, "would be essentially raising an entirely new issue beyond the scope of the remand and would inevitably lead to another appeal consistent with HELCO II."⁵⁵

HELCO also addresses Hu Honua's request for preferential rates. In its Letter Request introducing the Amended PPA to the Commission, HELCO clarified that it and Hu Honua had agreed upon all terms of the Amended PPA except for the Contract Price, for which reason Hu Honua was submitting a request for the Contract Price to be approved as a "preferential rate" pursuant to HRS § 269-27.3.⁵⁶ HELCO explained that it was forwarding Hu Honua's request, as it believed that it met the minimum requirements set forth in HRS § 269-27.3, and is thus "bona fide" and ripe for the Commission's consideration.⁵⁷

⁵⁴See HELCO Post-Hearing Brief at 2 and 26.

⁵⁵HELCO Post Hearing-Brief at 27.

⁵⁶See HELCO Letter Request at 1 and Exhibit B.

⁵⁷See HELCO Letter Request at 2. See also, HELCO PSOP at 30-35.

B.

Hu Honua

Hu Honua maintains that the two remaining issues before the Commission on remand have been satisfied as "all Parties and Participants, including LOL, have been given the opportunity to meaningfully participate in this docket and at the Hearing, and co-applicants HELCO and Hu Honua have presented undisputed evidence demonstrating that Hu Honua's state-of-the-art bioenergy facility [] will significantly reduce GHG emissions over the 30-year term of the [Amended] PPA."⁵⁸

Regarding GHG emissions associated with the Project, Hu Honua has offered a "carbon emissions reduction commitment and plan" ("Carbon Commitment"), which Hu Honua states will ensure that the Project is net negative by at least 30,000 MT CO₂e by the end of the Amended PPA's 30-year term, as well as becoming "carbon negative in the year 2035 and each year thereafter, assuming operations [begin] in 2022."⁵⁹ Hu Honua clarifies that this would be "completely independent of the overall GHG emissions that would be avoided as a result of the Project[,]" i.e., the avoided GHG emissions estimated by the Ramboll Analysis.⁶⁰

⁵⁸Hu Honua Post Hearing Brief at 2.

⁵⁹Hu Honua Pre-Hearing Testimony, T-2 (Jon Miyata) at 8. See also, id., T-1 (Warren Lee) at 29-34; and Exhibit Hu Honua-201.

⁶⁰Hu Honua Prehearing Testimony, T-1 (Warren Lee) at 30.

Hu Honua maintains that “[b]ecause there will be a Net GHG emissions reduction, the Project will reduce air pollution due to the lifecycle GHG emissions of the Project, and therefore, there will be no ‘long-term environmental and public health costs of reliance on energy produced at the proposed facility.’”⁶¹

To achieve its Carbon Commitment, Hu Honua states that it will prioritize replanting trees on land leased on Hawai‘i Island for feedstock, followed by replanting on other areas on Hawai‘i Island “or elsewhere within the State of Hawaii, as identified by our partners.”⁶² If none of these options are available, Hu Honua states that it will consider growing biomass outside of the State or, if necessary, “purchase offsets from reputable sources using Nature Based offsets to ensure growth of vegetation (e.g., VERRA or ACR) to ensure that [the Carbon Commitment is met].”⁶³ Further, “[i]f Hu Honua fails to purchase carbon offsets in sufficient quantity to make the GHG inventory Carbon Negative, Hu Honua will pay a monetary amount for

⁶¹Hu Honua Pre-Hearing Testimony, T-4 (David Weaver) at 3. See also Hu Honua PSOP at 14; and Hu Honua Post-Hearing Brief at 11, 13, and 14.

⁶²Hu Honua Prehearing Testimony, T-1 (Warren Lee) at 31.

⁶³Hu Honua Prehearing Testimony, T-1 (Warren Lee) at 31.

the purpose of procuring sufficient carbon offsets to achieve a Carbon Negative GHG inventory.”⁶⁴

Hu Honua also states that it will seek to work with partners such as the Friends of Hawai'i Volcano National Park (“FHVNP”), One Tree Planted (“OTP”), and the National Forest Foundation (“NFF”) to secure additional replanting efforts.⁶⁵ Hu Honua states that “[a]ll vegetation planted and grown in any of these scenarios will be subject to annual inventories and verification every five years.”⁶⁶

To demonstrate that Hu Honua can meet the Carbon Commitment, Hu Honua relies on the ERM Analysis, which estimates the Project's GHG emissions and associated

⁶⁴Hu Honua Prehearing Testimony, T-4 (David Weaver) at 16.

⁶⁵Hu Honua Prehearing Testimony, T-2 (Jon Miyata) at 9-10. Hu Honua indicates that there are agreements in place with these entities that are expected to result in planting or replanting efforts for which Hu Honua may receive credit. See id., Exhibits Hu Honua-202 (pledge agreement between Jennifer M. Johnson and FHVNP (“FHVNP Agreement”)), -203 (business donor agreement between Hu Honua and OTP (“OTP Agreement”)), -204 (pledge agreement between Jennifer M. Johnson and NFF), -205 (addendum to pledge agreement between Jennifer M. Johnson and NFF) (collectively, Exhibits Hu Honua-204 and -205 are referred to as the “NFF Agreement”), and -206 (letter signed by Jennifer M. Johnson assigning credits from pledge agreements with FHVNP and NFF to Hu Honua) (“Credit Assignment Letter”).

⁶⁶Hu Honua Prehearing Testimony, T-1 (Warren Lee) at 31.

sequestration efforts.⁶⁷ The ERM Analysis analyzed the Project under two scenarios, one based on the Project dispatch simulated by HELCO, approximately 11.8 MW ("HELCO Dispatch Scenario"), and another based on the full dispatch allowed under the Amended PPA, 21.5 MW ("Full Dispatch Scenario"), and concluded that Hu Honua will be able to meet the Carbon Commitment under either scenario.⁶⁸ As discussed further below,⁶⁹ the Commission finds the HELCO Dispatch Scenario more reasonable based on

⁶⁷See Hu Honua Prehearing Testimony T-4 (David Weaver) and Exhibits Hu Honua-401 and -402; and HELCO Supplemental Response to PUC-HELCO-IR-17.b, Attachment 3, Attachment B (reflecting the updated ERM Analysis as part of the updated Ramboll Analysis).

Note: the ERM Analysis alternately reports emissions and sequestration values in short tons and metric tons. To support consistency in this Decision and Order, the Commission has converted any figures reported in short tons into metric tons, using the following conversion: 0.90718474 metric tons / short tons, as reported by ERM. See HELCO Supplemental Response to PUC-HELCO-IR-17.b, Attachment 3 at 60 (table labeled "Conversion and other factors"). As a result, there may be slight discrepancies in values in this Decision and Order due to this conversion and rounding, but these do not materially affect the overall results.

⁶⁸See HELCO Supplemental Response to PUC-HELCO-IR-17.b, Attachment 3 at 32 and 34. Specifically, the ERM Analysis estimates GHG emissions and sequestration for the Project under: (1) a scenario that models the Project operating at a lower level of dispatch based on HELCO's production simulation of 2,972.2 GWh for the 30-year duration of the PPA (which translates into an average dispatch of approximately 11.8 MW); and (2) a scenario that models the Project operating at Hu Honua's full capacity dispatch level under the Amended PPA of 21.5 MW (approximately 5,418 GWh for the 30-year term of the Amended PPA).

⁶⁹See Section IV.C.3.ii, infra (discussing modeling of HELCO's expected dispatch of the Project).

the record, and thus focuses its discussion of the ERM Analysis as it pertains to this scenario.

The ERM Analysis states that "[b]ecause Hu Honua's actual dispatch will likely vary and is not within Hu Honua's control ([HELCO] controls the level of dispatch within the limits of the PPA), a 'Carbon Calculator' spreadsheet is included that will calculate, track, and demonstrate Project GHG Emissions during operations."⁷⁰ According to the ERM Analysis, the Carbon Calculator "is set up to calculate GHG emissions from the [Project] and other variable positive lifecycle emissions (e.g., transportation and fertilizer use), as well as the corresponding GHG emissions removed from the atmosphere through vegetation growth and offsets."⁷¹ Hu Honua states that the Carbon Calculator "provides a method by which Hu Honua will track actual operational parameters and emissions year-by-year during project operation" and that it "will be used to ensure that Hu Honua meets the GHG commitments it has made as described in [its] testimony and the Project GHG Analysis."⁷²

⁷⁰HELCO Supplemental Response to PUC-HELCO-IR-17.b, Attachment 3 at 34.

⁷¹HELCO Supplemental Response to PUC-HELCO-IR-17.b, Attachment 3 at 34.

⁷²Hu Honua Prehearing Testimony, T-4 (David Weaver) at 8.

The Carbon Calculator reflects GHG emissions and sequestration associated with a number of factors, including: Project operations, sequestration associated with vegetation growth on Hawai'i Island, sequestration associated with vegetation growth off-island, sequestration associated with trees planted under the NFF Agreement, and sequestration associated with "Other Mitigation Strategies."⁷³ Its underlying calculations consider a number of additional factors, belowground carbon loss, stack emissions, and other variables associated with the Project's lifecycle, such as fertilizer use, harvesting, transportation, and commissioning and decommissioning of the Project.⁷⁴

As reflected in the Carbon Calculator, Project emissions are expected to primarily result from stack emissions (approximately 5,921,950 MT CO₂e from 2022 through 2051) and belowground carbon loss (approximately 1,722,319 MT CO₂e from 2022 through 2051).⁷⁵ Project emissions are expected to be offset by the following three primary sequestration sources: (1) sequestration from aboveground biomass growth on

⁷³See HELCO Supplemental Response to PUC-HELCO-IR-17.b, Attachment 3 at 40-41.

⁷⁴See HELCO Supplemental Response to PUC-HELCO-IR-17.b, Attachment 3 at 42-43.

⁷⁵See HELCO Supplemental Response to PUC-HELCO-IR-17.b, Attachment 3 at 60. In the accompanying .xlsx Excel workbook, see "Table 2 - CO₂ Calculation Simulation" and Calculation Tab "Emission Sim". Conversion: 0.90718474 metric tons / short tons.

Hawai'i Island (approximately 5,882,332 MT CO₂e from 2017 through 2051); (2) sequestration from belowground biomass and soil organic carbon gain (approximately 1,925,172 MT CO₂e from 2017 through 2051); and (3) sequestration from trees planted pursuant to the NFF Agreement (approximately 437,500 MT CO₂e from 2022 through 2051).⁷⁶

Hu Honua also estimated the social cost savings of the Project by assigning a dollar value attributed to the Project's GHG emissions reduction estimates provided in the ERM Analysis, i.e., a net reduction of approximately 30,499 MT CO₂e over the Project's lifetime.⁷⁷ Hu Honua's consultant, PA Consulting Group, Inc. ("PA Consulting"), accomplished this by modeling the comparative costs of dispatching the Project versus relying on HELCO's fossil fuel units and then applying the Federal Government's "estimates of the cost to society of GHG emissions" to conclude that the Project would result in a

⁷⁶See HELCO Supplemental Response to PUC-HELCO-IR-17.b, Attachment 3 at 47 and 60. In the accompanying .xlsx Excel workbook, see "Table 2 - CO₂ Calculation Simulation" and Calculation Tab "Emission Sim". Conversion: 0.90718474 metric tons / short ton. While the Carbon Calculator includes columns to account for sequestration from other sources, for purposes of demonstrating that Hu Honua will be able to meet its Carbon Commitment, only sequestration estimates for Hawai'i Island vegetation and the NFF Agreement are included. These assumptions are used in ERM's analysis for both the HELCO Dispatch Scenario (Table 2) and the Full Dispatch Scenario (Table 3).

⁷⁷See Hu Honua Prehearing Testimony, T-7 (Jonathan Jacobs).

social cost savings of \$132 million (Full Dispatch scenario) or \$98 million (HELCO Dispatch Scenario).⁷⁸

In addition to the above, Hu Honua states that the Project will result in several additional benefits, including the provision of essential grid services currently provided by fossil fuel plants,⁷⁹ improved reliability compared to solar and energy storage projects,⁸⁰ potential utilization of invasive species as an additional fuel source,⁸¹ grid support functions enabled by the Project's synchronous condensers,⁸² and job creation and other economic impacts.⁸³ Hu Honua also provides information regarding community feedback on the Project, including letters of support in the docket⁸⁴ and the results of a survey by Anthology Market Group conducted on Hu Honua's behalf in December 2021.⁸⁵

Hu Honua also identifies a potential benefit of providing excess energy from the Project to produce hydrogen.

⁷⁸See Hu Honua PSOP at 22.

⁷⁹See Hu Honua PSOP at 46.

⁸⁰See Hu Honua PSOP, Exhibit 2 at 18-21.

⁸¹Hu Honua PSOP at 45.

⁸²See Hu Honua PSOP, Exhibit 2 at 22-25.

⁸³See Hu Honua Testimony, T-1 (Warren Lee) at 11-12; T-8 (Bruce Plasch); and Exhibit Hu Honua-801.

⁸⁴Hu Honua PSOP, Exhibit 3.

⁸⁵Hu Honua PSOP, Exhibit 4.

Under this proposal, energy generated at the Project in excess of the Amended PPA's maximum 21.5 MW Committed Capacity, estimated to be an additional 8.5 MW, could be used to produce hydrogen.⁸⁶ Hu Honua has executed a memorandum of understanding with H2 Energy, LLC ("H2 MOU")⁸⁷ for a hydrogen pilot program and has been exploring development of hydrogen infrastructure to support a hydrogen fueling station on Hawai'i Island.⁸⁸

Hu Honua maintains that it "desires and intends to source all of its biomass locally in Hawaii as its primary feedstock will consist of locally available eucalyptus," and that this would provide "insurance against having to export funds to pay for fossil fuel imports."⁸⁹ Hu Honua also states that it could use "invasive species on Hawaii Island as an additional fuel source for the Project to generate electricity, subject to whether the wood content of the invasive species meets the operating parameters of the boiler."⁹⁰

Hu Honua states that its fuel supplier, CN Renewable Resources, LLC ("CNRR"), will initially source

⁸⁶See Hu Honua Prehearing Testimony, T-1 (Warren Lee) at 9.

⁸⁷See Hu Honua Prehearing Testimony, Exhibit Hu Honua-101.

⁸⁸See Hu Honua Prehearing Testimony, T-1 (Warren Lee) at 10.

⁸⁹Hu Honua Post-Hearing Brief at 22.

⁹⁰Hu Honua Prehearing Testimony, T-1 (Warren Lee) at 8. See also Hu Honua Post-Hearing Brief at 27.

eucalyptus feedstock from Pahala, Paauhau, and Hamakua plantations on Hawai'i Island.⁹¹ Hu Honua claims that "[t]he need for sourcing feedstock outside of Hawaii Island would only arise as a last resort or because of an emergency shortage of feedstock outside of Hu Honua's or its fuel supplier's control" and "believes the likelihood of the emergency situations is very low."⁹²

Further, Hu Honua states:

If such an emergency situation does arise resulting in an insufficient quantity of secured local feedstock being available for use at the Project on a timely basis, Hu Honua will have no choice but to attempt to source biomass from other commercial forest locations. These locations listed in order of priority are as follows: (1) other areas on Hawaii Island, (2) other islands within the State of Hawaii, (3) areas in the continental United States, such as the Pacific Northwest, (4) other areas internationally, and (5) using biodiesel.⁹³

Hu Honua indicates that the feedstock produced on the three Hawai'i Island plantations would allow the Project to be operated for 9 years based under HELCO's Dispatch Scenario (reduced to 6 years, if the Project were dispatched under the Full Dispatch Scenario).⁹⁴

⁹¹See Hu Honua Prehearing Testimony, T-1 (Warren Lee) at 16.

⁹²Hu Honua Prehearing Testimony, T-1 (Warren Lee) at 17.

⁹³Hu Honua Prehearing Testimony, T-1 (Warren Lee) at 17.

⁹⁴See Hu Honua Response to PUC-Hu Honua-IR-48, filed on December 1, 2021.

Relatedly, Hu Honua maintains that growing and harvesting eucalyptus for biomass feedstock for electricity generation is an "agricultural activity" and therefore, the Amended PPA's pricing should be approved as a "preferential rate" pursuant to HRS § 269-27.3.⁹⁵

In its Post-Hearing Brief, Hu Honua states that it would agree to the following supplementary conditions:

- Hu Honua agrees to place \$100,000 (or in the alternative, a range of up to \$450,000 if the Commission believes a higher amount is more appropriate) of "seed money", which may include marketable liquid assets, into a reserve fund or escrow account in Year 1 which will remain in the account for the entire 30 year [Amended] PPA term (or in the alternative, a lesser term if the Commission believes a lesser period of time is more appropriate) to serve as cushion of available funds to ensure that its carbon negative commitments are met. If there is any carbon sequestration deficit in the annual reporting to the [Commission], Hu Honua will also place additional funds into the account each year over the 30-year term to cover the deficit and purchase carbon offsets (approximately \$15/ton);
- Hu Honua agrees to a condition requiring Hu Honua to provide a minimum of 3 prospective names of independent verifiers to the [Commission], allow all parties to comment, then the [Commission] can approve which prospective names are qualified to perform the independent five-year verification, then Hu Honua will select the independent verifier from the [Commission] approved list;
- Hu Honua agrees to a condition that within 60 months after a final non-appealable approval

⁹⁵See Hu Honua PSOP at 40-41.

order from the [Commission], Hu Honua will provide documentation to the [Commission] demonstrating that it has secured additional acreage on Hawaii Island to provide the feedstock for the remaining term of the [Amended] PPA;

- Hu Honua agrees not to receive a preferential rate for any period of energy generation using out-of-state feedstock; rather, Hu Honua would only be able to recover the Avoided Cost Rate as published monthly by HELCO for such period assuming such rate is lower than the [Amended] PPA rate;
- Hu Honua agrees to all of the recommended conditions within Hu Honua's control described in Section II.F of the [Consumer Advocate's] Prehearing Statement of Position; and
- Hu Honua stipulates to ongoing review by the [Commission] for purposes of reviewing and enforcing Hu Honua's carbon negative commitments and any other commitments proffered by Hu Honua in this proceeding. If Hu Honua fails to meet any commitments, it agrees to cure any shortcomings within a reasonable period of time to ensure that Hu Honua's commitments are met.⁹⁶

Further, Hu Honua offers that "in the event the above proposed conditions . . . are insufficient or require further clarity for the Commission, Hu Honua agrees to adopt any reasonable modifications and/or additional conditions ordered by the Commission that will enable the Commission to hold Hu Honua accountable and enforce any conditions of approval."⁹⁷ Hu Honua maintains that these conditions "should provide sufficient

⁹⁶Hu Honua Post-Hearing Brief at 4-5.

⁹⁷Hu Honua Post-Hearing Brief at 5.

assurance that the Project will be carbon negative and GHG emissions will be reduced.”⁹⁸

Hu Honua states that to comport with the Court’s decision in HELCO I, review of “costs” in this proceeding should be “limited to the ‘hidden and long-term costs’ associated within ‘GHG emissions’ within the context of HRS § 269-69(b).”⁹⁹ That being said, Hu Honua alternatively argues that even if the Amended PPA’s “total costs” are considered, Hu Honua contends that they should be “confined to the context of HRS § 269-6(b),” “which allows the [Commission] to determine that renewable energy costs that are higher than fossil fuel alternatives are reasonable.”¹⁰⁰ In support of this point, Hu Honua points to the analysis performed by PA Consulting.¹⁰¹

Further, Hu Honua maintains that Act 82 amended HRS § 269-6(b), such that the pertinent inquiry is the Amended PPA’s costs “*as compared to fossil fuel generation* (not against other renewable generation) given the impacts of fossil fuels on (1) price volatility, (2) export of funds for fuel imports, (3) fuel supply reliability risk,

⁹⁸Hu Honua Post-Hearing Brief at 5.

⁹⁹Hu Honua Post-Hearing Brief at 19.

¹⁰⁰Hu Honua Post-Hearing Brief at 20.

¹⁰¹See Hu Honua Post-Hearing Brief at 20-22.

and (4) GHG emissions.”¹⁰² With respect to these four factors, Hu Honua maintains that the Project will provide benefits, by reducing exposure to price volatility, the need to purchase fuel imports, fuel supply reliability, and the costs associated with GHG emissions.¹⁰³

When compared against fossil fuel generation, Hu Honua contends that the Amended PPA will result in customer savings, which Hu Honua estimates to be an average of \$1.13 (under the HELCO Dispatch Scenario) or \$8.31 (under the Full Dispatch Scenario).¹⁰⁴ Hu Honua disagrees with the results of HELCO’s bill impact analysis, arguing that it “is not reliable[,] given that it was not done in the context of HRS § 269-6(b), nor did it evaluate the cost of Hu Honua against just fossil generation[,]” as well as challenging other assumptions.¹⁰⁵

¹⁰²Hu Honua Post-Hearing Brief at 21-22.

¹⁰³Hu Honua Post-Hearing Brief at 22-23.

¹⁰⁴Hu Honua Post-Hearing Brief at 24 (citing Hu Honua Supplemental Response to PUC-Hu Honua-IR-41, filed on December 30, 2021, at 3, Tables 1 and 2).

¹⁰⁵Hu Honua Post-Hearing Brief at 24.

C.

The Consumer Advocate

The Consumer Advocate does not believe that the Amended PPA is in the public interest based on the current record.¹⁰⁶ Nevertheless, the Consumer Advocate recommends a number of conditions for the Commission to consider should the Commission be inclined to approve the Amended PPA.¹⁰⁷

Regarding GHG emissions, the Consumer Advocate believes there are remaining questions and concerns with respect to the ERM Analysis presented by Hu Honua due to the estimated figures in the Carbon Calculator not being supported by Project-specific data. These questions and concerns relate to: (1) upstream GHG emissions from cultivation, harvesting, and transportation of feedstock; (2) sequestered GHG emissions from the regrowth of the biomass feedstock; and 3) Hu Honua's Carbon Commitment.¹⁰⁸

The Consumer Advocate's questions and concerns relating to upstream GHG emissions from cultivation, harvesting, and transportation stem from a lack of evidentiary support that Hu Honua's feedstock will be cultivated and harvested on Hawai'i Island as assumed in the Carbon Calculator.

¹⁰⁶CA Post-Hearing Brief at 2.

¹⁰⁷CA Post-Hearing Brief at 2.

¹⁰⁸CA Post-Hearing Brief at 7-13.

The Consumer Advocate acknowledges that the estimated GHG emissions associated with the first 7-9 years of the Amended PPA appear to be reasonably supported and documented; however, the Consumer Advocate also notes that there are no references in Hu Honua's Fuel Sales and Purchase Agreement with CNRR indicating the source or type of the feedstock for the Project.¹⁰⁹ Without this information, the Consumer Advocate asserts that it cannot determine if there are any potential upstream GHG emissions related to the cultivation, harvesting, and transportation of feedstock that may be not be properly accounted for in the Carbon Calculator.¹¹⁰

The Consumer Advocate also retains questions and concerns relating to the Carbon Calculator's assumptions underlying its estimated sequestered GHG emissions from the regrowth of the biomass feedstock. Specifically, the Consumer Advocate notes that "plots designated for replanting are not identified, leaving a general estimation of how much biomass would need to be regrown annually to meet the [sic] Hu Honua's commitment to be 30,000 MT carbon negative," as well as Hu Honua's stated intent that it does not plan to plant or regrow

¹⁰⁹See CA Post-Hearing Brief at 8-9.

¹¹⁰CA Post-Hearing Brief at 8-9.

the plots at the Pahala and Hamakua plantations.¹¹¹ Consequently, the Consumer Advocate believes that "it is not clear at this time if Hu Honua will be able to coppice and replant biomass on currently held leases as stipulated as first and second priority orders, detailed in Hu Honua-201, Hu Honua Carbon Emissions Reduction Commitment and Plan."¹¹²

The Consumer Advocate also notes that further clarification is needed regarding other possible sources of biomass feedstock raised by Hu Honua at the evidentiary hearing, such as Hawai'i Island County green waste or invasive species biomass.¹¹³ The Consumer Advocate observes that no analyses have been conducted for these potential sources, making it difficult for the Commission to reasonably ascertain the impact those sources of biomass feedstock might have on GHG emissions.¹¹⁴

Finally, the Consumer Advocate asserts that Hu Honua's Carbon Commitment lacks sufficient details about how to monitor, verify and seek enforcement if there are any shortcomings, and further questions whether the use of carbon offsets comports

¹¹¹CA Post-Hearing Brief at 11.

¹¹²CA Post-Hearing Brief at 11.

¹¹³CA Post-Hearing Brief at 12.

¹¹⁴CA Post-Hearing Brief at 12.

with the intent of the Legislature given that carbon offsets can just as easily be applied to a fossil fuel facility.¹¹⁵

The Consumer Advocate also maintains that production simulation results indicate that HELCO "has no specific need for the Hu Honua facility right now."¹¹⁶ With respect to Hu Honua's suggestion that the Project would be a relatively lower cost generation source if fuel prices were higher, the Consumer Advocate argues that: (1) there may be due process concerns if the Commission were to consider certain updates to modeling inputs at this point in the proceeding; (2) higher oil prices would only make the Project relatively less expensive (but still raise bills for HELCO ratepayers, overall); (3) oil prices become less relevant into the future as fossil fuel generation is replaced with renewable energy; and (4) Hu Honua's argument is solely concerned with pricing, and does not consider other factors like relative capacities.¹¹⁷

Relatedly, the Consumer Advocate notes that the Amended PPA's thirty-year term "may only serve to lock in [the Amended PPA's] high price for an unreasonably long time" and that HELCO and Hu Honua have failed to demonstrate that the

¹¹⁵CA Post-Hearing Brief at 12-13.

¹¹⁶CA Post-Hearing Brief at 13.

¹¹⁷CA Post-Hearing Brief at 14-17.

benefits associated with the approval of the Amended PPA will exceed the costs of the Amended PPA.¹¹⁸

Regarding Hu Honua's request for preferential rates, the Consumer Advocate contends that given that the Project "is not needed for reliability purposes and that there are less expensive generation options to continue Hawaii Island's progress towards RPS compliance, the need to grant a request for preferential rates has not been supported."¹¹⁹ The Consumer Advocate specifically argues that the Commission, in exercising its statutory discretion to approve preferential rates, should apply the "just and reasonable" standard in HRS § 269-27.2(d)(1) and the "best interest of the general public" standard in HRS § 269-27.2(d)(5).¹²⁰ Under these standards, the Consumer Advocate submits that the Amended PPA is neither "just and reasonable" nor in the "best interest of the general public because the Amended PPA's pricing would raise Hawai'i Island ratepayers' bills and, based on the current record, would not result in benefits exceeding costs.¹²¹ The Consumer Advocate also notes that Hu Honua may not meet the statutory requirement that it produce renewable energy "in

¹¹⁸CA Post-Hearing Brief at 19.

¹¹⁹CA Post-Hearing Brief at 22.

¹²⁰CA Post-Hearing Brief at 22.

¹²¹CA Post-Hearing Brief at 23.

conjunction with agricultural activities” within the State because of the possibility that it may need to import its feedstock.¹²²

Notwithstanding the Consumer Advocate’s position that the Amended PPA is not in the public interest, should the Commission be inclined to approve the Amended PPA, the Consumer Advocate recommends adopting the following conditions:

- Requiring [HELCO] and Hu Honua to submit for Commission approval any Amended PPA amendments, including, but not limited to, a definition of “emergency” when Hu Honua may source feedstock from outside Hawaii Island.
- Requiring the filing of direct benefits from the [Project], such as the number of jobs and payroll.
- Requiring the filing of reports on community outreach activities to provide timely information on efforts to address remaining community concerns.
- Requiring Hu Honua to provide verifiable and enforceable details on its proposed reserve account for buying carbon offsets if necessary to fulfill its Carbon Commitment.
- Requiring [HELCO] to submit a plan, triggered once the proposed Hu Honua facility is in operation for a sufficient amount of time and properly vetted, to remove existing fossil fuel units, such as Puna Steam, Hill 5, and Hill 6 units, from service.¹²³

¹²²CA Post-Hearing Brief at 23.

¹²³CA Post-Hearing Brief at 26-27.

Should the Commission grant Hu Honua's request for preferential rates, the Consumer Advocate further recommends the adoption of the following conditions:

- Requiring a means of verification, such as the filing of reports to address assertions offered as benefit and justification for the preferential rate request, such as: 1) reporting on the total amount of locally sourced feedstock burned in each year, 2) the revenues and benefits associated with the harvesting and use of the feedstock, 3) the forestry management plan - including the total annual amount of replanted trees and jobs associated with the replanting, 4) the assessment of whether the operations of Hu Honua is carbon neutral or not, 5) Hu Honua's carbon sequestration plan, and 6) the total number of jobs and payroll generated. Such reporting could be used to cross-check any periodic information offered by Hu Honua in relation to its carbon neutrality commitment and benefits that [HELCO] and Hu Honua ha[ve] offered to the Commission as justification for the project.
- Requiring the filing of a fuel/feedstock report by Hu Honua to evaluate whether there are any cost savings that should be passed to customers.
- As indicated by Hu Honua Witness A at the hearing, Hu Honua's energy and capacity payments should be at a Commission-approved, lower, non-preferential rate for any energy or capacity produced with feedstock sourced off Hawaii Island.
- Any potential revenues from third-party sales should be used to reduce the preferential rates.¹²⁴

¹²⁴CA Post-Hearing Brief at 27-28 (internal citations omitted) While these conditions are prefaced as being "In the alternative," the Commission observes that the Consumer Advocate's concerns with

D.

LOL

LOL recommends that the Commission reject the Amended PPA for the following reasons.

First, LOL asserts that HELCO and Hu Honua have failed to meet their respective evidentiary burdens.¹²⁵

Second, LOL states that HELCO's support for the Amended PPA is suspicious in light of prior litigation between HELCO and Hu Honua arising from the original 2012 PPA.¹²⁶

Third, LOL contends that Hu Honua has not transparently disclosed its business dealings or corporate structure, nor has HELCO satisfactorily provided an evaluation of the Amended PPA, which precludes an informed review of the Amended PPA and related requests.¹²⁷

Fourth, LOL argues that the Project is unnecessary and against the public interest, as HELCO does not currently have a need for the Project, and competitively bid solar-plus-storage

the application of preferential rates would appear to be in addition to its concerns with the Project's alleged benefits to ratepayers, rather than an alternative set of concerns.

¹²⁵LOL Post-Hearing Brief at 9-10.

¹²⁶See LOL Post-Hearing Brief at 10-14.

¹²⁷See LOL Post-Hearing Brief at 14-16.

projects are available as lower cost resources.¹²⁸ Relatedly, LOL argues that the Project's claimed ancillary services are unnecessary and can be achieved through lower cost renewable projects, such as the solar-plus-storage projects that are currently under development.¹²⁹

Fifth, because HELCO and its related utilities, Hawaiian Electric Company, Inc. and Maui Electric Company, Limited, are currently ahead of their RPS mandate for 2020, a new proposed generation project must provide cost reduction benefits to ratepayers by improving the integration of lower cost renewable energy, which the Amended PPA does not accomplish.¹³⁰ Moreover, LOL asserts that the Amended PPA will result in the displacement and curtailment of lower cost, "less harmful" renewable energy projects.¹³¹

Sixth, LOL states that the Amended PPA's costs are unreasonable and will increase monthly bills for ratepayers.¹³² Relatedly, LOL argues that Hu Honua is not entitled to a

¹²⁸See LOL Post-Hearing Brief at 17-19.

¹²⁹LOL Post-Hearing Brief at 21.

¹³⁰LOL Post-Hearing Brief at 20 (citing Docket No. 2021-0185, Decision and Order No. 31759, filed December 23, 2013, at 96; and Docket No. 2012-0212, Decision and Order No. 31758, filed on December 20, 2013, at 121).

¹³¹LOL Post-Hearing Brief at 21-22.

¹³²LOL Post-Hearing Brief at 26-28.

determination of preferential rates under HRS § 269-27.3, as Hu Honua "is not planning to engage in silviculture activities[,] but is instead planning to contract that work out to third parties."¹³³ Further, LOL argues that "there is nothing in the record before the Commission that would provide any meaningful guidance with respect to the determination of that preferential rate, including how those considerations should be balanced against all of the other considerations related to the [Commission's] evaluation" ¹³⁴

Seventh, LOL states that when considering the long-term and hidden costs of the Project, the Project is unreasonable and contrary to the public interest. LOL argues that the Project, which relies on the harvesting, transportation, and combustion of biomass, will result in comparatively higher lifecycle GHG emissions than a fossil fuel unit.¹³⁵ LOL does not find HELCO's or Hu Honua's GHG analysis methodologies for the Project credible, and takes particular issue with Hu Honua's potential reliance on sequestration from trees outside the State.¹³⁶ Moreover, LOL raises concerns that offsets accomplished out-of-State may not be

¹³³LOL Post-Hearing Brief at 28.

¹³⁴LOL Post-Hearing Brief at 31.

¹³⁵LOL Post-Hearing Brief at 34-35.

¹³⁶See LOL Post-Hearing Brief at 35.

accurately verifiable, and could be subject to double-claiming of offsets.¹³⁷

LOL also argues that it is not currently possible to estimate the GHG emissions associated with upstream harvesting and transportation of feedstock for the Project, since Hu Honua has not determined where it will source its feedstock for the majority of the Amended PPA term.¹³⁸

Eighth, LOL argues that biogenic CO₂ emissions might be considered carbon neutral over a lengthy period of time, but they offer little help in addressing the urgent problems presented by the climate emergency.¹³⁹

Ninth, LOL states that in addition to unnecessary and excessive GHG emissions associated with the Project, other hidden and long-term costs include toxic air emissions, water use and emissions, harm to biodiversity, and negative impacts to the community.¹⁴⁰

¹³⁷LOL Post-Hearing Brief at 36.

¹³⁸See LOL Post-Hearing Brief at 36-37.

¹³⁹LOL Post-Hearing Brief at 42.

¹⁴⁰LOL Post-Hearing Brief at 45-54.

Tenth, LOL remains skeptical of Hu Honua's proposals to utilize invasive species as feedstock and sell excess energy from the Project as hydrogen.¹⁴¹

Lastly, LOL states that numerous questions remain as to how, if at all, the Commission would be able to ensure that Hu Honua complies with the Amended PPA and its Carbon Commitment.¹⁴² For example, LOL argues that "there is no evidence in the record as to how the Commission . . . could or would respond if the verification analysis reveals that Hu Honua is not in compliance [with its Carbon Commitment]."¹⁴³ LOL cautions that "[w]ithout clearly articulated conditions and consequences being included in the [Amended] PPA, it is unlikely that the Commission (or HELCO) would have the legal authority necessary to bring [Hu Honua] into compliance."¹⁴⁴ In this regard, LOL maintains that "[its] due process rights will be violated if the [Amended] PPA is approved without the Commission first definitively determining Hu Honua's obligations related to the [Amended] PPA, the compliance

¹⁴¹See LOL Post-Hearing Brief at 60-64.

¹⁴²LOL Post-Hearing Brief at 66.

¹⁴³LOL Post-Hearing Brief at 66.

¹⁴⁴LOL Post-Hearing Brief at 66.

verification methodology, the mechanism for enforcement, and/or other important outstanding issues.”¹⁴⁵

E.

Tawhiri

Tawhiri opposes approval of the Amended PPA. In support of its position, Tawhiri states that the terms and conditions of the Amended PPA are not prudent and in the public interest.¹⁴⁶ Tawhiri states that the Amended PPA will result in higher monthly bills for ratepayers, which HELCO estimates to be an increase of \$10.97 increase per month for an average residential customer,¹⁴⁷ and will also increase HELCO’s revenue requirements by \$285,746,325 over the 30-year term.¹⁴⁸

Tawhiri states that it shares the concerns of the Consumer Advocate and LOL regarding HELCO’s and Hu Honua’s GHG analyses (i.e., the Ramboll Analysis and ERM Analysis) and the potential negative impact to the environment and public health.¹⁴⁹ Tawhiri also voices concerns that curtailment of renewable

¹⁴⁵LOL Post-Hearing Brief at 67 (bold in the original).

¹⁴⁶Tawhiri Post-Hearing Brief at 19.

¹⁴⁷Tawhiri Post-Hearing Brief at 9.

¹⁴⁸Tawhiri Post-Hearing Brief at 10.

¹⁴⁹Testimony of Sandra-Ann Wong, Recording of Hearing, Day 5, March 7, 2022, at 01:51:58 – 01:52:14.

resources caused by the Project was not included in the Ramboll Analysis.¹⁵⁰ Further, Tawhiri states that Hu Honua has made many promises regarding carbon neutrality, but has made no firm financial commitment to guarantee them.¹⁵¹

Based on the above, Tawhiri recommends the Commission deny HELCO's Letter Request for approval of the Amended PPA and instead recommend that Hu Honua submit the Project for consideration in HELCO's upcoming third round of solicitations for competitive bidding for renewable projects.¹⁵² Alternatively, if the Commission is inclined to approve the application, Tawhiri recommends that the Commission should include the following conditions:

- HELCO will not curtail existing renewable generators, such as Tawhiri, to take energy from the Project;
- HELCO and Hu Honua will negotiate "a more just and reasonable price for its energy and capacity that would be more in line with the current energy market on Hawaii Island and more palatable for HELCO ratepayers"; and

¹⁵⁰Testimony of Sandra-Ann Wong, Recording of Hearing, Day 5, March 7, 2022, at 01:52:15 - 01:52:29.

¹⁵¹Testimony of Sandra-Ann Wong, Recording of Hearing, Day 5, March 7, 2022, at 01:52:31 - 01:52:42.

¹⁵²Tawhiri Post-Hearing Brief at 25.

- "Hu Honua will fully fund the Reserve Account to cover its commitment of 30,000 tons of carbon offsets."¹⁵³

III.

STATEMENT OF ISSUES

Pursuant to Order No. 37852,¹⁵⁴ as modified by Order No. 37910, the Statement of Issues governing this remanded proceeding is as follows:

1. What are the long-term environmental and public health costs of reliance on energy produced at the proposed facility?
 - a. What is the potential for increased air pollution due to the lifecycle GHG emissions of the Project?
2. What are the GHG emissions that would result from approving the Amended PPA?
3. Whether the total costs under the Amended PPA, including but not limited to the energy and capacity costs are reasonable in light of the potential for GHG emissions.
4. Whether the terms of the Amended PPA are prudent and in the public interest, in light of the Amended PPA's hidden and long-term consequences.¹⁵⁵

¹⁵³Tawhiri Post-Hearing Brief at 26.

¹⁵⁴As noted in Order No. 37852, these issues on remand are rooted in the Court's decisions in HELCO I and HELCO II. See Order No. 37852 at 8-10.

¹⁵⁵Order No. 37910 at 32-33.

IV.

DISCUSSION

A.

Issue No. 1: Long-Term Environmental And Public Health Costs Of Reliance On Energy Produced At The Project

The Commission is concerned that the Project may result in long-term environmental and public health costs for Hawai'i Island. Although Hu Honua portrays the Project as having a net GHG emissions reduction over the Project's lifetime, the Commission does not find Hu Honua's position sufficiently supported. The Project is expected to result in a significant amount of GHG emissions, and Hu Honua's claims to sequester enough carbon to offset these amounts is subject to speculation and uncertainty, creating the risk that the Project could become a net emitter of GHGs over its lifetime.

According to Hu Honua, the Project is estimated to produce more than 8,000,000 metric tons of CO₂ over the term of the Amended PPA. As the vast majority of these emissions are associated with the stack emissions associated with operating the Project, based on HELCO's simulated dispatch models, there is a high degree of confidence that such emissions will result if the Amended PPA is approved.

To mitigate these significant GHG emissions, Hu Honua commits to sequester GHGs, or to purchase carbon offsets,

sufficient to ensure the Project is net carbon negative by 30,000 metric tons by the end of the PPA term (2051). However, as discussed below, the Commission does not find this claim to credible, due to Hu Honua's reliance on a number of speculative assumptions to support its estimated sequestration results. The Commission's concerns are exacerbated by the sensitivity of the ERM Analysis, which leaves little margin for error. For example, a relatively small change in certain key inputs (e.g., a change of 1% to stack emissions, belowground carbon loss, aboveground carbon sequestration, or belowground carbon sequestration), could negate the net 30,000 MT CO₂e reduction estimated in the ERM Analysis, and instead result in the Project being a net emitter of GHGs over its lifetime. Even when taking into account the avoided lifecycle GHG emissions calculated by the Ramboll Analysis, estimated to be roughly 1,400,000 MT CO₂e, the uncertainty surrounding Hu Honua's ability to sufficiently sequester carbon could still result in the Project being a significant net emitter of GHGs.

This undermines confidence in Hu Honua's represented ability to sequester enough carbon to offset the significant GHG emissions the Project is expected to produce. Should sequestration efforts fall short, Hu Honua's plan to purchase carbon offsets has not been sufficiently developed, and it is uncertain whether it would be sufficiently robust.

Furthermore, it is unclear whether and how the Commission would be able to oversee and enforce Hu Honua's Carbon Commitment throughout the 30-year term of the Amended PPA, should Hu Honua fail to comply with the Carbon Commitment, assign or terminate the Amended PPA mid-term, or otherwise deviate from delivering the purported environmental benefits offered in support of approving the Amended PPA.

While the Commission recognizes that Hu Honua has offered to adopt "any reasonable modifications and/or additional conditions" to hold Hu Honua accountable for its Carbon Commitment,¹⁵⁶ the Commission does not find this proposal reasonable or appropriate under the circumstances. It is the Applicants' burden to demonstrate that their proposal is reasonable and in the public interest. Moreover, given the concerns identified by the Commission, discussed below, this is not a situation in which the Commission's concerns revolve around minor disputes that could be addressed through "reasonable modifications" or "additional conditions." Rather, the Commission's concerns go to fundamental aspects of Hu Honua's Carbon Commitment, such as the availability of land on Hawai'i Island for feedstock and sequestration, the potentially significant fluctuations in GHG emissions and sequestration based

¹⁵⁶Hu Honua Post-Hearing Brief at 29.

on actual performance, the lack of information supporting Hu Honua's backstop of purchasing carbon offsets, and questions and concerns regarding the enforceability of the Carbon Commitment. Relatedly, it is unclear what modifications would be considered "reasonable" by Hu Honua, which may result in a situation where potential modifications or conditions are immediately challenged.

Upon considering the above, the Commission finds that there is the potential for increased air pollution due to the lifecycle GHG emissions from the Project. Consequently, the Commission has concerns about the long-term environmental and public health costs that may result from the Project, and does not find that the GHG analyses, Carbon Commitment, or other evidence in the record reasonably mitigates these concerns.

1.

Concerns About The Project's GHG Emissions

i.

The Project Is Expected To Emit Significant GHG Emissions

The following Table 2 summarizes the results from the ERM Analysis using the HELCO Dispatch Scenario for projected lifecycle emissions from 2017-2051 (this includes the 30-year PPA term in addition to purported tree growth on plantations leased by

CNRR from 2017-2021 and estimated sequestration associated with trees planted pursuant to the NFF Agreement):

TABLE 2 Summary of GHG Emissions Estimates Adapted from Project GHG Analysis prepared by ERM ¹⁵⁷ HELCO Dispatch Scenario: 11.8 MW/2,972.2 GWh for the 30-year duration of the PPA	
ERM Project Emissions Estimates	Total 2017-2051 (MT CO₂e)
Stack Emissions	5,921,950
Belowground Biomass+Soil Organic Carbon Loss/Emissions	1,722,319
Fertilizing	121,614
Purchase of Electricity	74,024
Combustion of Biodiesel	67,000
Harvesting	37,661
Transport of Biomass	36,648
Lifecycle Factor Diesel	16,065
Air Pollution Control Device	15,865
Construction	14,848
Ash Transport Emissions	3,714
Site Prep/Weeding Emissions	2,551
Decommissioning	1,485
Transport of Biodiesel	60
Total Emissions Estimate	8,035,804

¹⁵⁷See HELCO Supplemental Response to PUC-HELCO-IR-17.b., Attachment 3 at 60. In the accompanying .xlsx Excel workbook, this is reflected in Calculation Tab: "Emission Sim." The Commission converted all amounts reported in short tons to metric tons at the following conversion rate provided in the .xlsx Excel workbook prepared by ERM: 0.90718474 metric tons / short ton.

ERM Sequestration Estimates¹⁵⁸	Total 2017-2051 (MT CO₂e)
On-Island CO ₂ e Aboveground Sequestration	(5,882,322)
Belowground Biomass+Soil Organic Carbon Gain/Sequestered	(1,746,487)
National Forest Foundation ("NFF") agreement	(437,500)
Total Sequestration Estimate	(8,066,309)
Total Project GHG Emissions Estimate¹⁵⁹	(30,505)¹⁶⁰

The above emissions and sequestration figures are determined through ERM's Carbon Calculator, which Hu Honua states, "provides a method by which Hu Honua will track actual operational parameters and emissions year-by-year during project operation" and "will be used to ensure that Hu Honua meets the GHG commitments

¹⁵⁸Sequestration estimates are based on HELCO Supplemental Response to PUC-HELCO-IR-17.b., Attachment 3 at 47 (Table 2) and 60. In the accompanying .xlsx Excel workbook, this is reflected in "Table 2 - CO₂ Calculation Simulation" and Calculation Tab: "Emission Sim." The "Emission Sim" calculation tab does not break down aboveground sequestration estimates between Hawai'i Island and NFF trees; however, these figures can be derived by referring to Table 2. Compare HELCO Supplemental Response to PUC-HELCO-IR-17.b, Attachment 3 at 60 (reflecting approximately 6,966,403 short tons of sequestered carbon from "CO₂e Sequestration (Excluding Belowground), converted into 6,319,815 metric tons, using conversion: 0.90718474 metric tons/short tons) with id., Attachment 3 at 47 (sum of "Net Aboveground Biomass Growth On Island" column, 5,882,322 MT CO₂e, and "NFF Trees" column, 437,500 MT CO₂e, equaling approximately 6,319,822 MT CO₂e).

¹⁵⁹ERM defines "Project GHG Emissions" as "net emissions minus net sequestrations." Hu Honua Prehearing Testimony, Exhibit Hu Honua-401 at 8.

¹⁶⁰Due to rounding, Net Lifecycle Emissions Estimate is (30,505) MT CO₂e in this table, however, in accompanying .xlsx Excel workbook, Calculation Tab: "Emission Sim" Cells, ERM's rounded conversion of Lifecycle Emissions reported in Cell AC43 is (30,499) MT CO₂e.

it has made as described in [its] testimony and the Project GHG Analysis.”¹⁶¹

As reflected in Table 2, above, the Project is estimated to produce a significant amount of GHG emissions (approximately 8,035,804 MT CO₂e) over the 30-year term of the Amended PPA. The ERM Analysis concludes that these emissions will be offset by carbon sequestered through planting of trees (on Hawai‘i Island and pursuant to the NFF Agreement), resulting in a net GHG reduction of approximately 30,500 MT CO₂e.¹⁶² This forms the basis of Hu Honua’s “Carbon Commitment.” However, upon reviewing the Analysis, the Commission is left with a number of concerns, which are discussed below.

¹⁶¹Hu Honua Prehearing Testimony, T-4 (David Weaver) at 8.

¹⁶²See Hu Honua Prehearing Testimony, T-4 (David Weaver) at 13 (stating that Tables 2 and 3 of Exhibit Hu Honua-402 “detail how Hu Honua will produce Carbon Negative electricity by using eucalyptus from commercial plantations as its primary fuel and by growing more biomass than it consumes.”); and HELCO Supplemental Response to PUC-HELCO-IR-17.b, Attachment 3, at 47-48 (reflecting updated Tables 2 and 3, and attributing sequestration to “Net Aboveground Biomass Growth On Island” and “NFF Trees”).

Hu Honua states that its Carbon Commitment does not include the “avoided emissions” from offsetting fossil fuel use on HELCO’s system, which Ramboll estimates to be approximately 1,400,000 MT CO₂e. In other words, the Carbon Commitment is to be at least 30,000 MT CO₂e carbon negative in addition to any avoided emissions from displaced fossil fuels on HELCO’s system.

Uncertainty Of Assumptions Underlying Sequestration Estimates

The Carbon Calculator relies on assumptions for its sequestration estimates that have not been reasonably established in the record. Review of the Carbon Calculator shows that "Net Aboveground Biomass Growth On Island" is the greatest contributor to sequestration, totaling an estimated 5,882,322 MT CO₂e sequestered.¹⁶³ Hu Honua states that it has contracted to receive local feedstock through a Fuel Sales and Purchase Agreement with CNRR ("Fuel Sales Agreement"), which, in turn, has separate agreements with three Hawai'i Island locations in Pahala, Paauhau, and Hamakua.¹⁶⁴ Although the Fuel Sales Agreement is intended for feedstock purposes (i.e., acquiring biomass to fuel the Project), it appears that the plantations leased by CNRR are also considered sources of sequestration in the ERM Analysis.¹⁶⁵

¹⁶³See HELCO Supplemental Response to PUC-HELCO-IR-17.b, Attachment 3 at 47.

¹⁶⁴See Hu Honua Prehearing Testimony, T-2 (Jon Miyata) at 3-6; see also, Hu Honua Response to CA/Hu Honua-IR-145, filed October 21, 2021; and Hu Honua Response to LOL-IR-2021-03, filed on July 26, 2021, Exhibit 1 ("2020 Biomass Fuel Supply Report Update for CN Renewable Resources," dated April 13, 2020, prepared by Forest Solutions, Inc.) (filed under seal).

¹⁶⁵See HELCO Supplemental Response to PUC-HELCO-IR-17.b, Attachment 3 at 47 (assigning sequestration values for the 2017-2021 period). See also, Hu Honua Response to PUC-Hu Honua-IR-14, filed on October 29, 2021 (indicating that the

In the Carbon Calculator, sequestration amounts can be divided into past sequestered estimates (i.e., for years 2017-2021) and future sequestration estimates (for years 2022-2051). The Commission has concerns with both.

Regarding past sequestration estimates, the Commission notes that Hu Honua has not provided consistent information regarding its past harvesting efforts on the plantations leased by CNRR.¹⁶⁶ ERM assumes roughly 330,321 MT CO₂e are sequestered in the years 2017-2021,¹⁶⁷ and assumes that no harvesting has taken place on plantations during this period.¹⁶⁸ However, Hu Honua has indicated that harvesting has, in fact, occurred during this period at the Pahala location.¹⁶⁹ This may impact the level of GHG

sequestration values for the 2017-2021 period are associated with the plantations Hu Honua currently has under lease); and Hu Honua Response to PUC-Hu Honua-IR-37.a, filed on October 29, 2021 (stating that trees may be "planted, replanted, or coppiced for sequestration purposes only [and will not be] harvested for Hu Honua feedstock.").

¹⁶⁶Compare Hu Honua Response to LOL-Hu Honua-IR-2021-03, Exhibit 1 (filed under seal), at 23 and 28 with Hu Honua Response to PUC-Hu Honua-IR-65, filed on January 10, 2022.

¹⁶⁷HELCO Supplemental Response to PUC-HELCO-IR-17.b, Attachment 3 at 47 (sum of years 2017-2021 for "Net Aboveground Biomass Growth On Island column). In accompanying .xlsx Excel workbook, see "Table 2 - CO₂ Calculation Simulation", Column G.

¹⁶⁸See HELCO Supplemental Response to PUC-HELCO-IR-17.b, Attachment 3 at 47 (table at right side, column titled "Approximate Acres Harvested").

¹⁶⁹See Hu Honua Prehearing Testimony, T-2 (Jon Miyata) at 8; and Hu Honua Response to PUC-Hu Honua-IR-65.

emissions associated with harvesting, as well as the number of trees remaining on plantations available to sequester carbon during this period. While the exact impact these harvest assumptions play in the ERM Analysis is unclear, the inconsistency between ERM's and Hu Honua's understanding of this issue is an example of uncertainty with the ERM Analysis' assumptions that causes the Commission to doubt the reliability of its results.

Regarding future sequestration estimates, the Carbon Calculator appears to assume continuation and/or expansion of Hawai'i Island leases. For example, the column labeled "Net Aboveground Biomass Growth on Island," shows increasing levels of annual sequestration.¹⁷⁰ Specifically, historic amounts of sequestration, noted for years 2017-2021, increase from 86,650 MT CO₂e in 2021 to approximately 100,000 MT CO₂e annually during 2022-2023, before increasing to 150,000 MT CO₂e annually during 2024-2028, and then increasing again to 200,000 MT CO₂e annually in 2029 and remaining at this annual level for each year for the rest of the PPA term through 2051.¹⁷¹

¹⁷⁰See HELCO Supplemental Response to PUC-HELCO-IR-17.b, Attachment 3 at 47. In accompanying .xlsx Excel workbook, see calculation tab, "Table 2 - CO₂ Calculation Simulation."

¹⁷¹See HELCO Supplemental Response to PUC-HELCO-IR-17.b, Attachment 3 at 47. In accompanying .xlsx Excel workbook, see calculation tab, "Table 2 - CO₂ Calculation Simulation."

However, at this time, lease agreements with the existing Hawai'i Island locations do not extend through the 30-year term of the PPA.¹⁷² Further, it does not appear that planting or regrowing of trees is occurring on the plantations currently leased by Hu Honua,¹⁷³ indicating that future sequestration estimates are premised on Hu Honua's ability to extend its existing leases or secure new lease agreements. Although Hu Honua states that it is in negotiations to extend the existing leases, no lease extensions or new leases have been obtained, and Hu Honua has indicated that completing negotiations for new or extended leases will require Commission approval of the Amended PPA first.¹⁷⁴

While the Commission recognizes Hu Honua's representations that it is engaged in ongoing efforts to secure extended and/or additional leases, and that Commission approval would facilitate negotiations, the Commission does not consider these reasonable assurances under the circumstances, as the outcome of these negotiations would not be known until after Commission approval has been given, at which point, the Commission would have little recourse if negotiations are not successful.

¹⁷²See Hu Honua Response to LOL-Hu Honua-IR-2021-03, Exhibit 1 (filed under seal), at 6.

¹⁷³See Hu Honua Response to CA/Hu Honua-IR-95.a, filed on February 18, 2020.

¹⁷⁴See Hu Honua Response to CA/Hu Honua-IR-135, filed on October 21, 2021.

Although Hu Honua has offered to provide, within 60 months of a final non-appealable approval order from the Commission, documentation demonstrating that it has secured additional acreage on Hawai'i Island, this offer is not premised on any binding agreement, but arises from "good faith discussions" with a potential landowner.¹⁷⁵

Further, it is unclear what "additional acreage" constitutes in this situation. For example, even if Hu Honua were able to successfully extend or potentially obtain additional acreage on Hawai'i Island, the Commission's concern is whether this will allow Hu Honua to achieve sequestration as set forth in the ERM Analysis, which, as noted above, contemplate a significant increase in sequestration for the remainder of the Amended PPA term. Thus, this condition, as proposed, does not adequately address the Commission's concerns, as Hu Honua could strictly comply with the condition by demonstrating an extension of an existing lease or negotiation of a new lease; however, if the associated acreage is not enough to provide the sequestration estimated by ERM, then the Commission's concerns about potential Hawai'i Island sequestration shortfalls would remain.

¹⁷⁵See Hu Honua Post-Hearing Brief at 28-29, n.145 (referring to "good faith discussions" with Kamehameha Schools ("KS"); and Exhibit F (clarifying that "[t]his proposal is subject to KS's internal review and final approval, and this letter is not legally binding upon either [Kamehameha Schools] or CNRR.").

Hu Honua has also stated that it would not be "financially viable" for it to secure acreage for the entire duration of the Amended PPA prior to receiving Commission approval.¹⁷⁶ However, this does not address the issue at hand. Regardless of whether it is "financially viable" for Hu Honua to contractually secure acreage for the duration of the Amended PPA, Hu Honua must present some reasonable form of evidence to support its assumptions regarding sequestration on Hawai'i Island as estimated in the ERM Analysis. Aside from evidence of non-binding "good faith" discussions, Hu Honua has not done so. For example, the Consumer Advocate has queried why Hu Honua could not enter into conditional agreements with landowners, where the agreement would be conditioned on approval of the Amended PPA.¹⁷⁷ Further, if not "financially viable" to secure leases for the entire Amended PPA term, it is unclear why leases could not be secured for at least a significant portion of the PPA term, which could help bolster sequestration assumptions.

Further, if Hu Honua is unable to extend or secure new lease agreements on Hawai'i Island, it would presumably need to procure feedstock from other islands within the State,

¹⁷⁶Hu Honua Response to PUC-Hu Honua-IR-35.e, filed on October 29, 2021.

¹⁷⁷See CA Post-Hearing Brief at 10.

the continental United States, or internationally.¹⁷⁸ As noted by the Consumer Advocate in its Post-Hearing Brief, this raises the possibility of additional GHG emissions associated with cultivating, harvesting, and transporting feedstock off-island that are not currently captured in the ERM Analysis.¹⁷⁹

Another significant source of CO₂e sequestration comes from trees planted under the NFF Agreement, which is estimated to result in approximately 437,500 MT CO₂e.¹⁸⁰ However, these figures are based on a generalized carbon sequestration rate, tree survival rate, and tree lifetime information Hu Honua states it received from NFF, and may not accurately reflect the actual performance of the planted trees, which will depend on the tree species, planting schedules, location, survival rate, growth rate, and sequestration rate.¹⁸¹ The lack of specific information blunts the credibility of the sequestration estimates from the NFF Agreement and injects further uncertainty as to the amount of GHG emissions that may be sequestered to offset Project emissions.

¹⁷⁸See Hu Honua Prehearing Testimony, T-1 (Warren Lee) at 17 and T-2 (Jon Miyata) at 4-5.

¹⁷⁹See CA Post-Hearing Brief at 8-9.

¹⁸⁰See HELCO Supplemental Response to PUC-HELCO-IR-17.b, Attachment 3 at 47.

¹⁸¹See Hu Honua Response to PUC-Hu Honua-IR-19.b, filed on October 29, 2021. See also Hu Honua Response to PUC-Hu Honua-IR-68, filed on January 10, 2022.

Hu Honua also refers to sequestration resulting from the OTP Agreement and from the FHVNP Agreement; however, neither of these agreements are reflected in the ERM Analysis' Carbon Calculator.¹⁸² Thus, it is impossible to reasonably estimate, based on the record, what amount, if any, of sequestered CO₂e may arise from these agreements.

The uncertainties and speculation associated with the ERM Analysis are particularly concerning, given the Carbon Calculator's high degree of sensitivity to changes in key input values, discussed further below.

iii.

Sensitivity Of The Carbon Calculator To Changes In Inputs

The Commission observes that the Carbon Calculator is highly sensitive to inputs from key emissions categories, with small changes having a significant impact on overall results. The following Table 3 reflects the major categories of emissions and sequestrations from the ERM Analysis:

¹⁸²See HELCO Supplemental Response to PUC-HELCO-IR-17.b, Attachment 3 at 47 of 61 (reflecting no sequestration estimates for "Other Mitigation Strategies").

TABLE 3¹⁸³ Project Emissions by Major Lifecycle Category (MT CO₂e)	
Lifecycle Step	MT CO₂e
Stack Emissions	5,921,950
Belowground Carbon Loss/Emissions	1,722,319
Aboveground CO ₂ e Sequestration	(6,319,815) ¹⁸⁴
Belowground Carbon Gain/Sequestered	(1,746,487)
Other ¹⁸⁵	375,201
Construction	14,848
Decommissioning	1,485
Total	(30,498)¹⁸⁶

¹⁸³Figures drawn from HELCO Supplemental Response to PUC-HELCO-IR-17.b, Attachment 3 at 60. In the accompanying .xlsx Excel workbook, see calculation tab, "Emission Sim." The Commission converted all amounts reported in short tons to metric tons at the following conversion rate: 0.90718474 metric tons / short ton. Slight variations in resulting values may be attributed to rounding.

¹⁸⁴This figure appears to account for aboveground sequestration from both Hawai'i Island, as well as the NFF Agreement. See n. 159, *supra*.

¹⁸⁵"Other" includes ERM's projected emissions associated with the following categories: Purchase of Electricity, Combustion of Biodiesel, Air Pollution Control Device, Transport of Biomass, Ash Transport Emissions, Site Prep/Weeding, Harvesting, Transport of Biodiesel, Lifecycle Factor Diesel, and Fertilizing. See HELCO Supplemental Response to PUC-HELCO-IR-17.b, Attachment 3 at 60.

¹⁸⁶As noted above, the total net emission figures in Table 3 may not exactly match those in Table 2 due to rounding and the conversion of figures from short tons to metric tons.

As reflected above, the four categories contributing the most towards GHG emissions increases and reductions are: above ground carbon sequestration, stack emissions, belowground carbon sequestration (i.e., carbon sequestered and stored belowground in roots and soil), and belowground carbon loss/emissions (i.e., loss of carbon stored below ground associated with activities such as harvesting).

The Commission considers these values significant, as they are critical to supporting the ERM Analysis' overall conclusion that the Project will be net negative by approximately 30,000 MT CO₂e over the term of the Amended PPA. The Commission further considers the relative risk associated with each of these emission and sequestration categories. Specifically, stack emissions and belowground carbon loss are direct outcomes of the Project's operations. These estimates are based on HELCO's simulated dispatch of the Project, but actual emissions could be higher depending on a number of factors, e.g., if the Project is dispatched at a greater level, if the carbon content of the feedstock is greater than estimated,¹⁸⁷ or if the Project operates at a lower efficiency than expected (thereby

¹⁸⁷For example, the ERM Analysis assumed a particular type of eucalyptus would be used for feedstock, but the Commission notes that Hu Honua has referenced potentially using other forms of vegetation for feedstock, such as invasive species, which may have different characteristics.

requiring more feedstock to sustain operations). Conversely, as discussed above, assumptions supporting ERM's sequestration figures are speculative and may not represent actual sequestration results.

This is particularly concerning, as the Commission's review indicates that even a one-percent deviation in any of the above four categories could cause the ERM Analysis' total estimated amount of CO₂e emissions to fluctuate significantly in either direction, which could easily turn the Project into a net emitter of GHG emissions, contrary to the Carbon Commitment. For example, a one-percent decrease in CO₂e aboveground sequestration (including sequestration from NFF trees) is estimated to increase CO₂e emissions by approximately 63,200 metric tons. This amount is more than double the approximately 30,500 metric tons of CO₂e net reduction calculated by ERM, and would turn the Project into a net CO₂e emitter of 32,700 metric tons over its lifecycle.¹⁸⁸ Similarly, a one percent increase in the biomass consumed to produce an equivalent amount of power would make the Project a net CO₂e emitter. That being said, the opposite would occur if there was a one percent increase in sequestration or a one percent decrease in biomass consumption.

¹⁸⁸32,700 metric tons is the sum of (30,500) metric tons and 63,200 metric tons.

This high level of sensitivity leaves little margin for error. When taking into account the many uncertainties underlying ERM's sequestration assumptions, discussed above, the likelihood that the Project will achieve net carbon negativity as claimed by Hu Honua becomes increasingly uncertain and poses the risk that the Project will instead become a net emitter of GHG emissions over its lifecycle. On this point, the Commission observes that the approximately 30,000 MT of carbon reduction pledged by Hu Honua in its Carbon Commitment represents a relatively small fraction of the 8,035,803 metric tons of overall GHG emissions expected to result from the Project (less than one-half of one percent).¹⁸⁹ This means that Hu Honua will need to achieve a significant amount of sequestration to offset the Project's emissions, and if Hu Honua's sequestration efforts deviate by even a small fraction from ERM's assumptions, the Project could become a net GHG emitter. Given the high sensitivity of the Carbon Calculator and the magnitude of emissions associated with certain key factors, the net 30,000 MT CO₂e estimated in the Carbon Commitment does not offer sufficient reassurance against the risk of the Project becoming a net GHG emitter, as it could be quickly swallowed by a relatively small change in assumptions.

¹⁸⁹30,000 / 8,035,803 = 0.37%

Uncertainty Regarding The Project's Total GHG Impact

As noted above, HELCO submitted a separate GHG analysis performed by Ramboll, which reported the total net GHG emissions impact associated with the Project.¹⁹⁰ In so doing, Ramboll independently estimated the avoided GHG emissions associated with the Project, while relying on ERM's estimates for the Project's lifecycle GHG impact,¹⁹¹ to arrive at a total "Net Emissions" GHG impact for the Project.

Ramboll defines the Project's "Net Lifecycle Emissions" as the Avoided Emissions from Fossil Fueled Plants ("Avoided Lifecycle Emissions") less the Emissions from the Project ("Project Lifecycle Emissions"), which Ramboll relied on ERM to provide. Accordingly, Ramboll applied ERM's Project Emissions estimate of (30,499) MT CO₂e to its estimate of Avoided Lifecycle Emissions to conclude that the Project will result in a Net Lifecycle Emissions Reduction of 1,464,742 MT CO₂e:¹⁹²

¹⁹⁰See HELCO Prehearing Testimony, Exhibit HELCO-501.

¹⁹¹See HELCO Prehearing Testimony, Exhibit HELCO-501 at 5-11; and HELCO Supplemental Response to PUC-HELCO-IR-17.b, Attachment 3 at 5-11.

¹⁹²See HELCO Supplemental Response to PUC-HELCO-IR-17.b, Attachment 3 at 11.

Net Lifecycle Emissions Reduction	=	Avoided Lifecycle Emissions	-	Project Lifecycle Emissions
1,464,742 MT CO ₂ e	=	1,434,243 MT CO ₂ e	-	-30,499 MT CO ₂ e

Thus, to reach its conclusion of "Net Lifecycle Emissions Reduction," Ramboll relied upon Project GHG emissions results from the ERM Analysis. However, as discussed above, there are concerns with the reliability of the results of the ERM Analysis. As reflected in the calculation above, a change in the Project Lifecycle Emissions would affect the overall Net Lifecycle Emissions associated with the Project. Given the 30-year term of the Amended PPA, as well as the uncertainties surrounding the results of the ERM Analysis, it is possible that the Project Lifecycle Emissions might swing in a different direction and begin to offset, if not completely cancel, the Avoided Lifecycle Emissions estimated by Ramboll.

On this point, the Commission notes that the ERM Analysis' results are highly sensitive to even slight changes in assumptions, and even a relatively slight change in Project efficiency or sequestration efforts could significantly swing the amount of actual Project emissions either way. Additionally, an acceleration in expected growth of other renewable projects on Hawai'i Island during the Amended PPA term could reduce estimated avoided emissions, as these would displace fossil fuel-based units

on HELCO's system, which could also affect the Project's total net GHG impact.

Accordingly, given the uncertainties around the estimated Project emissions, the Commission does not find Ramboll's estimate of Net Lifecycle Emissions dispositive on this matter.

2.

Additional Concerns With The ERM Analysis

i.

Opacity Of Carbon Calculator Inputs

The Carbon Calculator contains a number of hard-coded cells, which limits the Commission's ability to assess the reasonableness of the Carbon Calculator's inputs and outputs. For example, the Carbon Calculator assumes a fixed, hard-coded value of 180,983 metric tons of biomass combusted each year for its 11.8 MW average output analysis.¹⁹³ The record does not indicate how ERM arrived at this value - for example, there is no accompanying analysis regarding the heat content of the feedstock, its carbon ratio, or its water content to determine the amount of biomass necessary to fuel a Project output of approximately

¹⁹³See HELCO Supplemental Response to PUC-HELCO-IR-17.b, Attachment 3, at 47 (column titled "Biomass Combusted"). This is shown in the accompanying .xlsx Excel workbook, Table 2 - CO2 Calculation Simulation, Column F, "Biomass Combusted."

11.8 MW. The Consumer Advocate sought the formulas and underlying data for these hard-coded numerical values, but Hu Honua declined to provide the underlying calculations and data, and instead stated that it would "calculate biomass removed based on weighing the biomass at the facility with its truck scale."¹⁹⁴

Similarly, the Carbon Calculator includes hard-coded values for aboveground sequestration on Hawai'i Island.¹⁹⁵ As discussed above, this is the largest source of estimated sequestered carbon, approximately 5,882,322 MT CO₂e, and is a primary driver for ERM's conclusion that the Project will achieve net "carbon negativity" by the end of the Amended PPA's term. However, these figures are hard-coded into the Carbon Calculator without sufficient explanation as to how these figures were determined or deemed to be reasonable, or the basis for their escalation over the 30-year term. Again, in response to a request by the Consumer Advocate for the underlying formulas and data for the hard-coded values in the "Net Aboveground Biomass Growth on Island," Hu Honua declined to provide the actual formulas and data,

¹⁹⁴Hu Honua Response to CA/Hu Honua-IR-155, filed October 21, 2021.

¹⁹⁵See HELCO Supplemental Response to PUC-HELCO-IR-17.b, Attachment 3, at 47 (column titled "Net Aboveground Biomass Growth On Island"). This is shown in the accompanying .xlsx Excel workbook, Table 2 - CO₂ Calculation Simulation, Column G, "Net Aboveground Biomass Growth On Island."

and instead referred to "calculations based on the acreage growing and the mass per acre calculated for the Hu Honua leased acres based on the [Forest Solutions Report]."¹⁹⁶ Given the uncertainty about whether, and to what extent, Hu Honua will be able to secure acreage on-island throughout the 30-year term, the lack of supporting rationale for these hard-coded figures casts doubt on the credibility of the Carbon Calculator's results.

Given the sensitivity of the Carbon Calculator to certain inputs, including the amount of biomass combusted at the Project and the amount of aboveground sequestration, the reasonableness of these inputs is particularly important, and the lack of transparency as to how ERM arrived at these values further call into doubt the reliability of the ERM Analysis' results.

Further, these hard-coded aboveground sequestration outputs drive some of the underlying calculations for the Carbon Calculator. For example, "Table 2" of the Carbon Calculator reflects the results of the HELCO Dispatch Scenario, with the underlying calculations performed in the "Emission Sim" spreadsheet of the accompanying .xlsx Excel workbook.¹⁹⁷

¹⁹⁶Hu Honua Response to CA-Hu Honua-IR-155.

¹⁹⁷A .pdf version of the Emission Sim workbook is reflected in HELCO Supplemental Response to PUC-HELCO-IR-17.b, Attachment 3

Upon review, the numerical values provided in the "calculations tabs" in the Emission Sim for aboveground sequestration are set to be equal to the values ERM provides for aboveground sequestration in Table 2 (Column G, labeled "Net Aboveground Biomass Growth On Island")).¹⁹⁸ Thus, it appears that the Carbon Calculator is configured such that its results (i.e., sequestration values provided in Table 2) are used as inputs into the worksheet to drive calculations (i.e., sequestration values in calculation tab, Emission Sim - Column P). It is unclear why the Carbon Calculator is configured in this manner, and raises additional questions as to the reasonableness and reliability of the Calculator as a tool to track and measure emissions and sequestration resulting from the Project.

at 60 ("CO2 Calculator Example Simulated Production Emissions from Hu Honua Plant Over 30 Year Duration").

¹⁹⁸Compare, HELCO Supplemental Response to PUC-HELCO-IR-17.b, Attachment 3, at 60 (column labeled "CO2e Sequestration (Excluding Belowground)" (in the accompanying .xlsx Excel workbook, see calculation tab, "Emission Sim", Column P, labeled "CO2e Sequestration (Excluding Belowground)") with id., Attachment 3 at 47 (Table 2, column labeled "Net Aboveground Biomass Growth On Island") (in accompanying .xlsx Excel workbook, see calculation tab, "2 - CO2 Simulation," Column G, labeled "Net Aboveground Biomass Growth On Island").

Sequestered Carbon Is Not Estimated
To Overtake Accumulated GHG Emissions Until 2047

Even assuming, arguendo, that the Carbon Calculator was not subject to the above uncertainties, the purported GHG benefits of the Project may not result until very late in the Amended PPA's 30-year term.

As part of Hu Honua's Carbon Commitment, Hu Honua pledges to be carbon negative on an annual basis by the end of 2035, and each year thereafter until the end of the PPA term (assuming operations begin in 2022).¹⁹⁹ However, this statement is premised on comparing GHG emissions and sequestration in each particular year of the Amended PPA ("Annual Basis"), and does not consider the cumulative impact of prior years' worth of emissions and sequestration ("Cumulative Basis"). When analyzed from a Cumulative Basis, that is, taking into account all of the prior years' worth of accumulated GHG emissions and sequestration, total carbon sequestration does not overtake total GHG emissions until 2047, near the end of the Amended PPA term, and after the State's 2045 zero emissions clean economy target,²⁰⁰ as shown in the following Table 4:

¹⁹⁹See Hu Honua Prehearing Testimony, T-1 at 29.

²⁰⁰See https://www.capitol.hawaii.gov/hrscurrent/vol104_ch020_1-0257/HRS0225P/HRS_0225P-0005.htm.

TABLE 4
Emissions and Sequestration Presented on an Annual Basis vs.
on a Cumulative Basis
(Adapted from the ERM Analysis)²⁰¹

	A. Total Emissions	B. Cumulative Emissions	C. Total Sequestration	D. Cumulative Sequestration	E. Net Annual Emissions	F. Cumulative Emissions
YEAR	(MT CO₂e)	Cumulative of A (MT CO₂e)	(MT CO₂e)	Cumulative of C (MT CO₂e)	E = A + C (MT CO₂e)	Cumulative of E (MT CO₂e)
-	16,333	16,333	0	0	16,333	16,333
2017	0	16,333	(32,707)	(32,707)	(32,707)	(16,374)
2018	0	16,333	(80,121)	(112,827)	(80,121)	(96,495)
2019	0	16,333	(90,814)	(203,641)	(90,814)	(187,308)
2020	0	16,333	(112,377)	(316,018)	(112,377)	(299,686)
2021	0	16,333	(112,377)	(428,396)	(112,377)	(412,063)
2022	265,290	281,623	(132,815)	(561,211)	132,475	(279,588)
2023	267,386	549,008	(138,534)	(699,745)	128,851	(150,737)
2024	267,386	816,394	(203,910)	(903,655)	63,475	(87,262)
2025	267,386	1,083,779	(207,035)	(1,110,691)	60,350	(26,912)
2026	267,386	1,351,165	(210,160)	(1,320,851)	57,225	30,313
2027	267,386	1,618,550	(210,160)	(1,531,012)	57,225	87,539
2028	267,386	1,885,936	(210,160)	(1,741,172)	57,225	144,764
2029	267,386	2,153,321	(275,006)	(2,016,178)	(7,620)	137,143
2030	267,386	2,420,707	(275,006)	(2,291,184)	(7,620)	129,523
2031	267,386	2,688,092	(275,006)	(2,566,189)	(7,620)	121,903
2032	267,386	2,955,478	(275,006)	(2,841,195)	(7,620)	114,283
2033	267,386	3,222,863	(275,006)	(3,116,200)	(7,620)	106,663
2034	267,386	3,490,249	(275,006)	(3,391,206)	(7,620)	99,043
2035	267,386	3,757,634	(275,006)	(3,666,212)	(7,620)	91,423

²⁰¹See HELCO Supplemental Response to PUC-HELCO-IR-17.b., Attachment 3 at 60. In the accompanying .xlsx Excel workbook, see Calculation Tab: "Emission Sim" Cells E43, F43, G43, J43, L43, M43, N43, O43, P43, Q43, T43, U43, V43, W43, X43, Y43. Conversion: 0.90718474 metric tons / short tons (slight differences attributed to rounding). Note that columns B, D, and F in Table 4 represent the cumulative amounts for the preceding columns, which the Commission calculated using columns A, C, and E, which are based on the Carbon Calculator.

	A. Total Emissions	B. Cumulative Emissions	C. Total Sequestration	D. Cumulative Sequestration	E. Net Annual Emissions	F. Cumulative Emissions
YEAR	(MT CO₂e)	Cumulative of A (MT CO₂e)	(MT CO₂e)	Cumulative of C (MT CO₂e)	E = A + C (MT CO₂e)	Cumulative of E (MT CO₂e)
2036	267,386	4,025,020	(275,006)	(3,941,217)	(7,620)	83,803
2037	267,386	4,292,405	(275,006)	(4,216,223)	(7,620)	76,183
2038	267,386	4,559,791	(275,006)	(4,491,228)	(7,620)	68,563
2039	267,386	4,827,177	(275,006)	(4,766,234)	(7,620)	60,942
2040	267,386	5,094,562	(275,006)	(5,041,240)	(7,620)	53,322
2041	267,386	5,361,948	(275,006)	(5,316,245)	(7,620)	45,702
2042	267,386	5,629,333	(275,006)	(5,591,251)	(7,620)	38,082
2043	267,386	5,896,719	(275,006)	(5,866,257)	(7,620)	30,462
2044	267,386	6,164,104	(275,006)	(6,141,262)	(7,620)	22,842
2045	267,386	6,431,490	(275,006)	(6,416,268)	(7,620)	15,222
2046	267,386	6,698,875	(275,006)	(6,691,273)	(7,620)	7,602
2047	267,386	6,966,261	(275,006)	(6,966,279)	(7,620)	(18)
2048	267,386	7,233,646	(275,006)	(7,241,285)	(7,620)	(7,639)
2049	267,386	7,501,032	(275,006)	(7,516,290)	(7,620)	(15,259)
2050	267,386	7,768,417	(275,006)	(7,791,296)	(7,620)	(22,879)
2051	267,386	8,035,803	(275,006)	(8,066,302)	(7,620)	(30,499)
	Total: 8,035,803		Total: (8,066,302)		Total:) (30,499) ²⁰²	

When viewed from the Cumulative Basis, as reflected in Table 4 above, if one were to take into account all of the prior years' worth of accumulated GHG emissions and sequestration in the year 2035, Hu Honua would be a net emitter of 91,423 MT CO₂e in 2035, as shown in Column F, above. When considering this

²⁰²As noted above, the 30,500 MT CO₂e figure is an approximate result, and slight variations are attributed to rounding and conversion from short tons to metric tons.

perspective, it is notable that even if one accepts Hu Honua's speculative assumptions, cumulative GHG emissions are expected to exceed cumulative sequestration throughout the majority of the Amended PPA's term, up until 2047, at which point total carbon sequestration barely overtakes the accumulated amount of GHG emissions arising from the Project. This reflects a practical "frontloading" of GHG emissions and "backloading" of GHG reductions, and demonstrates that the Project is estimated to increase GHG emissions for decades before the purported sequestration "catches up" to emissions and begins to result in "carbon negativity."

3.

Concerns With Hu Honua's Carbon Commitment

i.

Hu Honua Has Not Demonstrated A Developed Plan To Purchase Carbon Offsets

Hu Honua offers its Carbon Commitment as a backstop to ensure that the Project will achieve its carbon negativity goals, even if sequestration performance falls short of ERM's estimates. To this end, Hu Honua's Carbon Commitment includes an option to purchase carbon offsets to make up for any deficits in annual sequestration, or to provide funds for the purchase of carbon

offsets, to remedy any annual shortfalls in sequestered carbon.²⁰³ However, the Commission finds that this component lacks sufficient detail and cannot be relied upon to support Hu Honua's Carbon Commitment.

In its Post-Hearing Brief, Hu Honua states:

Hu Honua agrees to place \$100,000 (or in the alternative, a range of up to \$450,000 if the Commission believes a higher amount is more appropriate) of "seed money", which may include marketable liquid assets, into a reserve fund or escrow account in Year 1 which will remain in the account for the entire 30 year [Amended] PPA term (or in the alternative, a lesser term if the Commission believes a lesser period of time is more appropriate) to serve as cushion of available funds to ensure that its carbon negative commitments are met. If there is any carbon sequestration deficit in the annual reporting to the PUC, Hu Honua will also place additional funds into the account each year over the 30-year term to cover the deficit and purchase carbon offsets (approximately \$15/ton)[.]²⁰⁴

Aside from this, there is relatively little detail or information in the record regarding Hu Honua's plans for purchasing carbon offsets. Based on the Commission's review of the record, it appears as though Hu Honua views this as a largely unexplored

²⁰³See Hu Honua Prehearing Testimony, T-1 (Warren Lee) (stating that if in any year, Hu Honua has not sequestered enough carbon to comply with the Carbon Commitment, Hu Honua will purchase carbon offsets or pay a monetary amount for the purpose of procuring sufficient carbon offsets to satisfy the terms of the Carbon Commitment for that year).

²⁰⁴Hu Honua Post-Hearing Brief at 4.

remote possibility.²⁰⁵ The Commission finds this concerning, given the likelihood that carbon offsets will be necessary for Hu Honua to fulfill its Carbon Commitment, in light of the uncertainties surrounding its estimated sequestration efforts, discussed above.

For example, Hu Honua does not appear to have considered the nature or potential costs of reasonable carbon offsets necessary to backstop its Carbon Commitment. Aside from stating

²⁰⁵See Hu Honua Response to PUC-Hu Honua-IR-34.a, -b, and -g, filed October 29, 2021 (only noting that Hu Honua will identify nature-based offsets from reputable sources, and Hu Honua also appears to only consider purchasing carbon offsets in 2035 after a need has been identified). See also Testimony of Warren Lee, Recording of Hearing, Hearing Day 2, March 2, 2022, at 7:27:30-7:30:30 (noting that Hu Honua does not expect to get to the point where carbon offsets are necessary; carbon offsets are a "fourth priority" right now after replanting trees either on the island, in the state, or somewhere else in the world; Hu Honua has made some very high preliminary inquiries regarding carbon offsets, but they would prefer not to go there; and declining to respond as to whether Hu Honua has undertaken calculations regarding what costs might be necessary for carbon commitment.), at 7:30:45-7:33:40 (introducing, for the first time, that Hu Honua would consider as a condition to the Carbon Commitment to set funds in a designated reserve fund account to ensure compliance with carbon commitment, provided the condition is reasonable.); and Testimony of Jon Miyata, Recording of Hearing, Hearing Day 3, March 3, 2022, at 0:25:00-0:28:30 (noting that there hopefully will not be any shortfalls of carbon sequestration, so they should not need to purchase carbon offsets upfront, but that they would contribute \$15 per ton for carbon offsets if there is a shortfall, and that Hu Honua would be willing to seed this fund with \$100,000.), and at 0:30:30-0:34:05 (unable to answer how familiar Hu Honua is with carbon offset markets or how Hu Honua would select a reputable firm for a carbon offset program, but that Hu Honua would consult with their GHG experts, and would begin funding for carbon offsets in year 1 of the Amended PPA.)

that Hu Honua would purchase carbon offsets from "reputable sources using Nature Based offsets to ensure growth of vegetation (e.g., VERRA or ACR),"²⁰⁶ Hu Honua has offered little detail about where or how these carbon offsets would be sourced, purchased, and verified. For example, Hu Honua has not specified the potential source location of any needed carbon offsets, how the sequestration associated with these offsets would be verified, what assurances there would be that the offsets are not being double-counted and represent additional sequestration that would not otherwise occur, etc. Such information would help inform the Commission's analysis to determine if such carbon offsets represent a reasonable means to offset the significant GHG emissions Hu Honua estimates will be produced by the Project's operation. Hu Honua has also assumed that it can purchase carbon offsets for approximately \$15 per metric ton,²⁰⁷ which may be a reasonable valuation based on today's voluntary carbon offset market, but it is uncertain whether the price of carbon offsets will remain at this level or increase throughout the 30-year PPA term.

Moreover, the potential fluctuations in sequestration in any given year of the Amended PPA's 30-year term indicate that

²⁰⁶Hu Honua Prehearing Testimony, T-1 (Warren Lee) at 31.

²⁰⁷See Hu Honua Post-Hearing Brief at 28.

Hu Honua's proposed reserve fund of up to \$450,000 may be insufficient to support its Carbon Commitment. For example, assuming Hu Honua's valuation of \$15 per metric ton of carbon offsets, \$450,000 would allow Hu Honua to purchase approximately 30,000 metric tons of carbon offsets.²⁰⁸ However, GHG emissions from Project operations in any given year of the Amended PPA's term, including after 2035, the year upon which Hu Honua pledges to become carbon negative on an annual basis, dwarf that amount; for example, the stack emissions component, alone, is estimated at 197,398 MT CO₂e, annually.²⁰⁹ Taking this into consideration, if sequestration performance is below ERM's estimates, it does not appear that \$450,000 would be sufficient to purchase enough carbon offsets to offset annual emissions.

Although the Commission acknowledges Hu Honua's offer to increase this seed money to a "higher amount" if deemed "appropriate," similar to Hu Honua's proffer to "reasonably modify" ERM's Carbon Calculator, the Commission again emphasizes that the Applicants carry the burden of proof, and it is not for the Commission to undertake this responsibility for Hu Honua.

²⁰⁸450,000 / 15 = 30,000.

²⁰⁹See HELCO Supplemental Response to PUC-HELCO-IR-17.b, Attachment 3 at 60. In accompanying .xlsx Excel workbook, see Calculation Tab: "Emission Sim" column Q (reflecting annual emissions in short tons). Conversion: 0.90718474 metric tons / short tons.

Thus, the Commission finds, based on the record before it, that Hu Honua's proposal to backstop its Carbon Commitment with purchasing carbon offsets lack sufficient detail and does not reasonably account for the potential scope of sequestration that may be required to fulfill the Carbon Commitment.

Regarding Hu Honua's offer to "pay a monetary amount for the purpose of procuring sufficient carbon offsets,"²¹⁰ Hu Honua has not offered sufficient information about this component, and only recently elaborated that it could explore procuring carbon offsets through "partnering with the State of Hawaii Department of Land and Natural Resources ('DLNR') and to pledge a monetary amount towards their 100 Million Tree Program to contribute to their planting efforts and in turn contribute towards Hu Honua's carbon commitments."²¹¹

Similar to Hu Honua's proposed purchase of carbon offsets, the Commission has concerns with the under-developed nature of this proposal in the record. While the 100 Million Tree Program appears laudable, there are virtually no details in the record about this program, including the nature, structure, or administration of this program; whether Hu Honua has reached

²¹⁰See Hu Honua Prehearing Testimony, T-1 (Warren Lee) at 32.

²¹¹Hu Honua Post-Hearing Brief at 17 (citing Testimony of Warren Lee, Recording of Hearing, Hearing Day 2, March 2, 2022, at 7:43:14-7:45:01).

out and had preliminary discussions with relevant agency personnel; where, and on what timeline DLNR intends to begin its conservation efforts; and whether, and by whom, sequestration associated with this program would be monitored and verified. Furthermore, Hu Honua does not indicate how much money it would be willing to put forth to support this program, and the ERM Analysis lacks necessary inputs and assumptions for the Commission to make an informed finding about the certainty of emissions impacts associated with this type of program and whether such impacts can directly be attributed to Hu Honua's funding.

Additionally, there is no proposed framework for the Commission to review, monitor, and/or verify carbon offsets purchased by Hu Honua. While Hu Honua does propose a process to verify its sequestration of GHG emissions, in which an independent third party would verify the results of Hu Honua's annual reports in comparison with the carbon negativity goals of the Carbon Commitment,²¹² Hu Honua does not propose a framework for review of carbon offset projects in this approach. Furthermore, as the Commission's authority is limited to public utilities operating within the State, it is unclear what recourse the Commission would have if these carbon offset projects, which may be located out-of-State, were found to operating in a manner

²¹²See Hu Honua PSOP at 16.

inconsistent with Hu Honua's Carbon Commitment. In the absence of more details about how carbon offsets would be accounted for and verified, the Commission cannot be reasonably confident in the efficacy of this part of the Carbon Commitment.

ii.

It Is Unclear Whether The Carbon Commitment Would Be Enforceable

Overshadowing the above concerns is the larger concern of whether the Commission would be able to hold Hu Honua to its Carbon Commitment following approval of the Amended PPA. Although Hu Honua has "stipulate[d] to ongoing review by the [Commission] for purposes of reviewing and enforcing Hu Honua's carbon negative commitments," and "agree[d] to cure any shortcomings within a reasonable period of time,"²¹³ the Commission does not find this proffer sufficiently reassuring. First, it is unclear what would result if Hu Honua were to disagree with or object to a Commission finding that an aspect of the Carbon Commitment was not being met. If Hu Honua were to challenge the Commission's finding, including a potential appeal, this could result in an ongoing cycle of legal disputes throughout the 30-year term of the Amended PPA.²¹⁴

²¹³Hu Honua Post-Hearing Brief at 5.

²¹⁴The Commission observes that this is not idle speculation, as Hu Honua has filed a number of procedural motions challenging

Second, aside from Hu Honua's assertions that it will comply with ongoing Commission review, there would be few options if Hu Honua decided to ignore the Commission's authority. The Commission does not possess direct regulatory authority over independent power producers such as Hu Honua, and thus is limited in its ability to compel specific actions by Hu Honua. The Commission does retain authority over public utilities, such as HELCO, as well as the Amended PPA; however, taking action against these would involve a drastic result, such as suspending payment by HELCO or voiding the Amended PPA, which could have severe consequences that could be disproportionate to the situation. Put another way, the Commission would be left with very few, extremely blunt tools by which to hold Hu Honua to its Carbon Commitment. These tools are not without cost to ratepayers, either; for example, if the Commission were to void the Amended PPA, this would terminate the PPA mid-term, potentially at a point where the purported GHG benefits of the Project have not yet been delivered to ratepayers (as discussed above, a large majority of the Project's sequestered GHGs are expected to occur during the latter half of the 30-year term).

the Commission's rulings during this remanded proceeding, and even sought an interlocutory appeal to the Court, which delayed commencement of the evidentiary hearing.

Ultimately, the uncertainties surrounding the ERM Analysis, as well as lack of a well-developed plan to support the Carbon Commitment if local sequestration efforts fall short of ERM's estimates, indicate that Hu Honua's pledge is premised heavily on trust, rather than a robust plan and accompanying support. Taking all of this into account, the Commission has serious concerns about whether, and to what extent, it would be able to hold Hu Honua to its Carbon Commitment if it approved the Amended PPA.

4.

Additional Concerns

It is unclear what impact Hu Honua's intent to sell excess energy in the form of hydrogen may have on the Project's GHG emission profile.²¹⁵ Hu Honua has provided a copy of a H2 MOU to potentially sell hydrogen energy from the Project.²¹⁶ Specifically, the MOU states that Hu Honua would,

²¹⁵The Commission notes there remains disagreement between HELCO and Hu Honua on whether such an arrangement between Hu Honua and a third party for the purchase of excess energy is permissible within the Amended PPA or would require additional amendments. Compare HELCO Response to CA/HELCO-IR-58.a, filed on October 21, 2021 with Hu Honua Response to CA/Hu Honua-IR-124.b, filed on October 21, 2021. Despite this disagreement, Hu Honua continues to incorporate this purported benefit. See Hu Honua Post-Hearing Brief at 5-6 and at 27.

²¹⁶Hu Honua Prehearing Testimony, Exhibit Hu Honua-101.

"[p]rovide electricity for the hydrogen system(s) at a rate of \$0.10 per kWh, subject to, but not limited to the following:
a. The power purchase agreement ('PPA') between Hu Honua and [HELCO] is approved by the [Commission] and becomes non-appealable."²¹⁷

The Commission is concerned with the carbon accounting associated with the Excess Energy Agreement, considering additional feedstock, presumably procured from the same leases as feedstock supporting the Amended PPA, would be burned, releasing additional GHG emissions into the atmosphere. Hu Honua does not account for these emissions in the Ramboll Analysis or the ERM Analysis. Without accounting for emissions associated with this excess energy agreement for developing hydrogen energy in the Carbon Calculator, the Commission is not able to reasonably determine the long-term environmental costs of this proposal for Hawai'i Island customers.

Although the Commission understands that Hu Honua intends to be at least carbon neutral for any third-party agreements,²¹⁸ this intention is harder to enforce than Hu Honua's

²¹⁷Hu Honua Prehearing Testimony, Exhibit Hu Honua-101 at 2. The Commission observes that the proposed rate of \$0.10 per kWh is well below the cost of energy Hu Honua would charge HELCO under the Amended PPA.

²¹⁸See Hu Honua Post-Hearing Brief, Exhibit D at 11-12.

Carbon Commitment for the Amended PPA. Absent any sure way to ensure that this Excess Energy Agreement is carbon-neutral, the record does not contain any reasonable assurances that the associated long-term environmental costs of the Excess Energy Agreement will be offset by Hu Honua's Carbon Commitment. Further, having this unregulated agreement for excess energy arising from approval of the Amended PPA, a regulated agreement, could result in ratepayers subsidizing the costs of this unregulated agreement, to the benefit of the owners of the Project.

B.

Issue No. 2: GHG Emissions
That Will Result From Approving the PPA

As discussed above, in light of the significant GHG emissions expected to result from the Project, the speculation and uncertainty underlying Hu Honua's sequestration efforts raises concerns that Hu Honua will not be able to offset emissions, and that the Project may ultimately become a net emitter of GHGs over its lifetime. Additionally, the Commission is not convinced that Hu Honua has adequately demonstrated a reasonable plan for purchasing carbon credits to offset the Project's considerable GHG emissions if sequestration efforts fall short of ERM's estimates. Lastly, it is unclear whether, and to what extent the Commission would have authority to enforce Hu Honua to the Carbon Commitment. Accordingly, based on the record before it, the Commission finds

that there is the potential that the Project may result in a net increase in GHG emissions, as there are too many uncertainties regarding whether, how, and to what extent, Hu Honua will be able to successfully offset the GHG emissions expected to be produced by the Project.

C.

Issue No. 3: Reasonableness Of Total Costs Of
The PPA In Light Of The Potential For GHG Emissions

Review of the Amended PPA reveals that it will result in significant costs to ratepayers. Ratepayers are expected to experience significant increases to their monthly bills as a result of the Amended PPA, and the PPA's provisions are expected to result in forced un-economic dispatch of the Project and the displacement of lower-cost resources, including other lower-cost renewable resources. These costs are further exacerbated by the fact that the Project is not currently expected to serve urgent grid needs, provide unique grid services, or offer other benefits, such as expedited retirement of HELCO's fossil fuel plants. Taking into account these considerations and weighing them against the uncertainties and concerns with the Project's GHG emissions, discussed above, the Commission does not believe that the total costs of the Amended PPA are reasonable under the circumstances.

Consideration Of PPA Costs

As a preliminary matter, the Commission addresses some of the arguments raised by Hu Honua and HELCO regarding the scope of this issue on remand.

First, Hu Honua argues that the Court's remand instructions indicate that the Project's potential GHG impacts are a threshold issue - i.e., only if there is a likely potential for net GHG emissions, should the Commission turn to considering whether the Amended PPA's costs are reasonable.²¹⁹ Although the Commission disagrees with this interpretation, it notes that this argument is rendered moot, given the concerns with the Project's GHG impacts discussed above.

Second, the Commission does not agree with Hu Honua's interpretation of HRS § 269-6(b), as amended, which would limit review of the Amended PPA's costs to comparing it to fossil fuel alternatives. The Commission notes that Hu Honua has raised this argument several times on remand, including in its Act 82 Motion and Second Act 82 Motion,²²⁰ and the Commission has consistently affirmed its interpretation that Act 82 does not reflect an intent by the Legislature to narrow the scope or applicability of,

²¹⁹See Hu Honua Post-Hearing Brief t 18.

²²⁰See Hu Honua Act 82 Motion, Memorandum in Support at 17-26; and Hu Honua Second Act 82 Motion, Memorandum in Support at 6-8.

or otherwise reduce the Commission's statutory duties under, HRS § 269-6(b), as guided by the Court's decisions.²²¹ The Commission again clarifies that it does not believe that Act 82 has altered the nature or scope of the Commission's statutory duties under HRS § 269-6(b), as previously defined by the Court in its past decisions, including HELCO I.

Interpreting Act 82 as argued by Hu Honua would significantly diminish the scope of review under HRS § 269-6(b) in this proceeding and exclude consideration of significant amounts of GHG emissions. For example, in its initial Act 82 Motion, Hu Honua argued that Act 82 modified HRS § 269-6(b) such that only GHG emissions from fossil fuel sources should now be considered, which would effectively preclude review of the GHG emissions associated with the Project, except, perhaps, incidental emissions associated with harvesting, transportation, and construction.²²² Subsequently, in its Second Act 82 Motion, Hu Honua slightly modified its position and argued that Act 82 revised the Commission's statutory duties by narrowing the scope of review to the reasonableness of the cost of renewable energy generation

²²¹See Order No. 37910 at 23-32; and Order No. 38183.

²²²See Hu Honua Act 82 Motion, Memorandum in Support at 3 (arguing that Act 82 reflected a Legislative intent to "limit[] the scope of the Commission's statutory obligations under HRS § 269-6(b) to just fossil fuel GHG emissions.").

projects, such as the Project, solely against fossil fuel generation, but excluding consideration of other renewable generation.²²³

Under either construction, review would be incomplete. Looking at GHG emissions from only fossil fuel sources would eliminate review of the substantial GHG emissions associated with Project operations (estimated by ERM to be approximately 8,035,804 MT CO₂e over the 30-year term²²⁴). Limiting review of the Project exclusively to fossil fuel generation would create an unrealistic comparison that would not accurately reflect the true impact of the Project on HELCO's system and customer bills (such as the costs associated with displacement of other, lower cost renewable resources), as discussed in greater detail below.

The Commission does not believe such results were intended by the Legislature, given that they dramatically diminish consideration of the GHG impacts resulting from a project and would also undermine the caselaw built around this issue as developed by

²²³See Hu Honua Second Act 82 Motion, Memorandum in Support at 5.

²²⁴See Table 2, supra. See also, HELCO Supplemental Response to PUC-HELCO-IR-17.b, Attachment 3 at 60.

the Court in recent years.²²⁵ Consequently, the Commission does not believe Act 82 limits its review during remand.

Relatedly, the Commission is not persuaded by HELCO's argument that the issue of the Amended PPA's costs are outside the scope of this proceeding on remand simply because the PPA's pricing has not changed.²²⁶ As noted above, first, this presumes that the Project is not expected to result in GHG emissions, which the Commission has concluded is not reasonably established.

Moreover, the Commission observes that the Court expressly instructed the Commission to consider, in addition, to GHG emissions, "whether the cost of energy under the Amended PPA is reasonable in light of the potential for GHG emissions, and whether the terms of the Amended PPA are prudent and in the public interest, in light of its potential hidden and long-term consequences."²²⁷ Thus, the Court explicitly contemplated that review of the Amended PPA's terms, including its pricing, would be considered on remand, along with the Project's GHG impact.

²²⁵C.f., Order No. 37910 at 26-32 (discussing the Legislative history of Act 82 and concluding that it reflects a conscious decision to not exempt biomass projects from the scope of HRS § 269-6(b)). See also, In re MECO, HELCO I, and Matter of Gas Company, LLC, 147 Hawaii 186, 465 P.3d 633 (2020).

²²⁶See HELCO Post-Hearing Brief at 27.

²²⁷HELCO II, 149 Hawaii at 242, 487 P.3d at 711 (quoting HELCO I, 144 Hawaii at 26, 445 P.3d at 698).

Accordingly, the Commission finds that review of the total costs of the Amended PPA is within the scope of this issue on remand.

2.

The Amended PPA Pricing Structure

The Commission notes that the pricing structure for the Project changed between the original PPA and the Amended PPA. In renegotiating and submitting the Amended PPA in 2017, HELCO and Hu Honua "agreed upon all terms set forth in the Amended and Restated PPA . . . except for the Capacity Charge and Energy Charge (collectively, the 'Contract Price')." ²²⁸ Article 5 of the Amended PPA ("Rates for Purchase"), outlines the components of the Contract Price and related contract items.

Section 5.1.F describes the monthly Energy Charge, which is determined by multiplying the Fuel Component and the Variable Operations & Maintenance ("O&M") Component by the amount of energy served in kWh for that month. The Fuel Component is \$0.08005 per kWh of energy provided, adjusted annually and increased by 15% on the sixth anniversary of the Commercial Operations Date. The Variable O&M Component is \$0.0099 per kWh of energy provided, adjusted annually.

²²⁸Amended PPA at 2.

Section 5.1.G describes the monthly Capacity Charge, which is determined by multiplying the Capacity Charge Rate and the Fixed O&M Rate by the Firm Capacity of the Project from the prior month, which is 21.5 MW unless derated during that month. The Capacity Charge Rate is \$54,000 per MW. The Fixed O&M Rate is \$25,000 per MW, adjusted annually.²²⁹ The Fuel and Variable O&M Components of the Energy Charge and the Fixed O&M Rate of the Capacity Charge are "adjusted each year on January 1, starting in 2018, at one hundred percent (100%) of the change in [the Gross Domestic Product Implicit Price Deflator ("GDPIPD")] but shall not exceed 4% increase in any given term year, using the adjustment methodology set forth in Attachment I (Adjustment of Charges)."²³⁰

The Commission notes that only the Updated Report of the Pricing of the PPA, provided as an exhibit attached to Hu Honua's Prehearing SOP and developed by PA Consulting, contains an estimate of the inflation-adjusted rates identified above for mid-2022.²³¹ The following are PA Consulting's estimates of the inflation-adjusted mid-2022 rates for the three components that

²²⁹Amended PPA, Exhibit A at 68.

²³⁰Amended PPA, Exhibit A at 68 and 69.

²³¹See Hu Honua PSOP, Exhibit 2 ("Updated Report of the Pricing of the Amended & Restated PPA," prepared by Jonathan Jacobs and Venkat Krishnan of PA Consulting for Hu Honua).

adjust with inflation: Fixed O&M Rate: \$28,259.07 per MW per month; Fuel Component: \$0.09049 per kWh; and Variable O&M Component: \$0.01119 per kWh.²³² The Commission utilizes these inflation-adjusted rates for the purpose of analyzing the dispatch and associated costs for the Project.

The Commission also observes that there is a spike in energy prices built into the Amended PPA pricing structure for the sixth year. In the Contract Price, a 15% increase is built into the Fuel Component on the sixth anniversary of the commercial operations date.²³³ However, this increase is separate from the adjustments for inflation, and is applied only to the Fuel Component (and not the Variable O&M Component, Fixed O&M Rate, or Capacity Charge Rate), and the record does not explain how or why this specific 15% increase is reasonable. It is unclear why the Fuel Component should increase in addition to the inflation adjustments, while the Fixed O&M and Variable O&M do not. This one-time increase, in conjunction with the annual inflation adjustments, results in increasing costs over time for

²³²Hu Honua PSOP, Exhibit 2 at 7. The projected Fixed O&M Charge for mid-2022 is \$607,570 per month. Dividing this by the committed capacity of 21.5 MW finds this estimate of the monthly Fixed O&M Charge of \$28,259.07 per MW per month.

²³³Amended PPA, Exhibit A at 69.

the Amended PPA, rather than a fixed price for the lifetime of their agreement.

The Commission further notes that HELCO was unable to reach agreement with Hu Honua on this pricing structure²³⁴ and has indicated that the Project involves higher than market rates and cannot compete with lower-cost renewables under the current pricing structure. In this regard, the Commission observes that because fixed costs make up a large portion of the Amended PPA's pricing structure, HELCO will be required to make significant payments to Hu Honua even if utilization of the Project is low.

Furthermore, the Amended PPA includes terms that require HELCO to dispatch the Project, under normal conditions, within a dispatch range of 10.0 to 21.5 MW ("Minimum Dispatch Requirement")²³⁵ all hours of the year, except for two weeks

²³⁴See Testimony of Rebecca Dayhuff-Matsushima, Recording of Hearing, Day 1, March 1, 2022, at 2:31:55-2:33:50. (Ms. Dayhuff-Matsushima noted that HELCO did not necessarily think that the contract price was appropriate, but did recognize that there were certain circumstances where it may make sense to pay more for a project if agricultural processes are included, so HELCO agreed to submit the contract price as preferential rate request. Ms. Dayhuff-Matsushima further confirmed that HELCO could not reach agreement with Hu Honua to find a reasonable price.)

²³⁵See Amended PPA, Exhibit A at 143 (Attachment D). Under certain circumstances, HELCO can reduce dispatch to an absolute minimum of 7 MW at HELCO's discretion during periods of "unusual operating conditions." Id. A at 49 (Section 3.2.C.3.f).

reserved for annual maintenance.²³⁶ When considering the pricing structure of the Amended PPA, discussed above, in conjunction with the Minimum Dispatch Requirement provisions of the Amended PPA, it is likely that the Project will represent a relatively high-cost resource on HELCO's system, as further discussed below.

3.

Costs Of The Amended PPA

i.

The Amended PPA's Costs Are Significant

HELCO estimates that the revenue requirements for the Project (to be collected from customers) will exceed \$1.2 billion over the 30-year term of the PPA.²³⁷ HELCO further estimates that the Project will provide approximately 2,979,000,000 kWh of electricity.²³⁸ Thus, the total revenue requirement for the Project

²³⁶See Amended PPA, Exhibit A at 43. Section 3.2(B)(6)(c), Normal Annual Maintenance Requirements, allows for two contiguous weeks of planned outages per Calendar Year for Maintenance and four contiguous weeks of planned outages every fifth year.

²³⁷HELCO Response to PUC-HELCO-IR-17.b, Attachment 2 (updated Exhibit HELCO-305) at 1 (sum of column a, "Hu Honua Total Revenue Requirement (Current Year \$)"), equal to approximately \$1,210,558,450.

²³⁸HELCO Response to PUC-HELCO-IR-17.b, Attachment 1 (updated Exhibit HELCO 201) at 1 (sum of column A, "Hu Honua Generation (GWh)"). Conversion: 1 GWh = 1,000,000 kWh.

is equivalent to approximately 40.64 cents per kWh over the Project's lifetime.²³⁹

As a result, the Project is expected to contribute to significantly higher customer bills over the 30-year PPA term. HELCO's updated bill impact analysis estimates that adding the Project to the grid would increase the typical residential bill by an average of \$10.97 per month over the 30-year term of the Amended PPA, as reflected in Table 5 below:

TABLE 5 ²⁴⁰	
Year	Estimated Monthly Impact on 500 kWh Residential Bill
2022	\$2.36
2023	\$7.57
2024	\$8.97
2025	\$12.18
2026	\$12.09
2027	\$9.88
2028	\$10.99
2029	\$10.64
2030	\$12.31

²³⁹See HELCO Response to PUC-HELCO-IR-17.b, Attachments 1-2 (updated Exhibits HELCO-201 and HELCO-305). The sum of column "a" ("Hu Honua Total Revenue Requirement (Current Year \$)") in HELCO-305 divided by the sum of column A ("Hu Honua Generation (GWh)") in HELCO-201 yields the total revenue requirement above.

²⁴⁰See HELCO Response to PUC-HELCO-IR-17.b, Attachment 2 at updated Exhibit HELCO-305. The typical residential bill is defined for the bill impact analysis as a customer using 500 kWh of energy per month.

2031	\$13.01
2032	\$12.88
2033	\$12.69
2034	\$13.02
2035	\$13.69
2036	\$13.59
2037	\$13.50
2038	\$13.35
2039	\$12.89
2040	\$12.51
2041	\$12.09
2042	\$11.70
2043	\$11.22
2044	\$10.76
2045	\$11.96
2046	\$11.14
2047	\$9.91
2048	\$8.58
2049	\$7.39
2050	\$9.07
2051	\$7.15
Average	\$10.97

The Commission observes that this is a significant overall bill impact. Further, HELCO's analysis indicates that customers are expected to experience consistent average bill increases throughout the entire term of the Amended PPA. As reflected in Table 5, above, following the first year of the Amended PPA (i.e., beginning in 2023), the average monthly bill impact ranges from \$7.15 to \$13.69. The Commission observes that this significant bill impact is likely, given that HELCO has noted that under the pricing structure and the Minimum Dispatch Requirement in the Amended PPA, "[w]hile it could be theoretically

possible to fix the dispatch of Hu Honua instead of economic dispatch, [HELCO] does not agree that taken as a whole, with Hu Honua's energy and capacity payment structure, there is a method of dispatch, operation, or modelling assumptions could produce a net savings to the system or customer."²⁴¹

ii.

The Project Is Expected To Displace Other Renewable Resources

To analyze estimated impacts of the Project, HELCO set up a resource plan for the Base Case that includes their assumptions for long-term resource additions based on recent planning considerations in Hawaiian Electric's Integrated Grid Planning process. HELCO then added the Project to the same resource plan for the Alternate Case, which is the sole difference between the Base Case and Alternate Case. Using the planning period of the Project's 30-year Amended PPA lifetime, 2022-2051, HELCO utilized PLEXOS, a production simulation program, to simulate how the system may operate in both the Base Case and Alternate Case. Key outputs from the production simulations include energy produced and fuel consumed by each generating unit for both utility and non-utility units, energy taken from each variable generation unit, and the cost of fuel consumed, which were

²⁴¹HELCO Response to CA/HELCO-SIR-28.a.1.b, filed on November 18, 2021.

all used to analyze the impact of adding the Project to the resource plan.²⁴²

In HELCO's analysis, the Project was simulated as a 10 to 21.5 MW continuously operating biomass generator that can be economically dispatched, based on energy and operating and maintenance costs from the Amended PPA.²⁴³ By limiting the change in the Alternate Case to the addition of the Project, HELCO was able to identify system cost changes that are solely due to the presence of the Project, rather than to any other changes on HELCO's system.²⁴⁴ Results of the Alternate Case indicate that the Project would provide a sum of 2,979 GWh of generation over its 30-year lifetime.²⁴⁵ Because Hu Honua is expected to dispatch all hours of the year except for two weeks of annual maintenance, as referenced above, converting this sum of generation to MWh (i.e., 2,979,000 MWh) and dividing by 252,000 hours²⁴⁶ yields the

²⁴²HELCO Prehearing Testimony, T-3 (Robert Uyeunten) at 4-5.

²⁴³HELCO Prehearing Testimony, HELCO T-3 (Robert Uyeunten) at 5.

²⁴⁴See HELCO Response to HHB-HELCO-SIR-14.a., filed on November 18, 2021

²⁴⁵See HELCO Response to PUC-HELCO-IR-17.b, Attachment 1 (updated Exhibit HELCO-201) (sum of column A, "Hu Honua Generation (GWh)").

²⁴⁶252,000 hours represents the number of hours of expected operation of the Project, given that it would operate 168 hours per week for 50 weeks of the year for 30 years.

expected average dispatch of 11.8 MW for the 30-year term of the Amended PPA.

This estimated dispatch level is corroborated by the Consumer Advocate's independent analysis, which concluded a similar result. The Consumer Advocate reviewed HELCO's production simulation analysis inputs and assumptions to check them and independently modeled the same scenarios.²⁴⁷ The Consumer Advocate's modeling found a similar dispatch, cost, and displacement of renewable resources as HELCO's production simulation using separate models,²⁴⁸ and concluded that the average annual energy output from the Project would be 98,620 MWh, which would correspond to an average dispatch of 11.3 MW,²⁴⁹ indicating that the Project is rarely, if ever, selected for economic dispatch above its contractual minimum dispatch level.²⁵⁰

²⁴⁷See Consumer Advocate Second Errata to Supplemental Response to HHB-CA-SIR-16, filed on January 3, 2022, at 3.

²⁴⁸See Consumer Advocate Second Errata to Supplemental Response to HHB-CA-SIR-16 at 4-6.

²⁴⁹Consumer Advocate Second Errata to Supplemental Response to HHB-CA-SIR-16 at 5.

²⁵⁰While not identical, the Commission finds that the Consumer Advocate's estimated dispatch estimate of 11.3 MW is similar enough to HELCO's estimated dispatch estimate of 11.8 MW to persuasively support the reasonableness of HELCO's estimated dispatch level. Based on the Commission's review of the Consumer Advocate's analysis, the Consumer Advocate used the hours associated with all 52 weeks of the year for its estimate, whereas HELCO's analysis utilized the hours associated with 50 weeks of the year, based on the assumption that the Project is

This indicates that the Project will likely be dispatched near its minimum contractual level throughout the Amended PPA term. This can be attributed to the Amended PPA's provisions, including its pricing structure and Minimum Dispatch Requirement, which make the Project uneconomical to dispatch compared to other, more cost effective resources on HELCO's system.

Relatedly, HELCO has stated that in order to accept more energy from the Project than is estimated in its production simulation, "without deviating from the principles of economic dispatch, would require a lower energy price from the facility so that its incremental cost is more competitive to other online resources."²⁵¹ Thus, as a result of the Amended PPA's

expected to have two weeks of planned maintenance per year in which the Project will be offline. If the Consumer Advocate's analysis was updated to reflect this same assumption, its results would be more similar to HELCO's. To demonstrate this, the Commission observes that the total estimated dispatch in the Consumer Advocate's simulation is 2,958,615 MWh (see Consumer Advocate Supplemental Response to HHB-CA-SIR-16, filed on December 21, 2021, Exhibit HHB-CA-SIR-16, Table 3), whereas the total estimated dispatch in HELCO's simulation is 2,979,000 MWh (see HELCO Response to PUC-HELCO-IR-17.b, Attachment 1 (updated Exhibit HELCO-201)).

Regardless of how the average dispatch is calculated, the difference in total dispatch between the two simulations is less than 22,000 MWh, which represents less than a 1% difference. Taking this into account, the Commission finds that the Consumer Advocate's analysis is generally consistent with HELCO's analysis.

²⁵¹See HELCO Response to CA-HELCO-IR-63.b.2, filed October 21, 2021.

Minimum Dispatch Requirement, HELCO may be required to dispatch the Project ahead of lower-cost renewable resources that would otherwise be prioritized on a cost basis for economic dispatch. This point has also been corroborated by the Consumer Advocate, whose own analysis concludes that the Project is expected to significantly displace other renewable energy resources on HELCO's system, not just fossil fuel units:

The production simulation results indicate that Hu Honua will not operate near its maximum output during the duration of the study period and does not replace fossil fuel generation on a one for one basis as assumed in the Hu Honua cost analysis. It appears that Hu Honua operates near its minimum output of 10 MW per hour. It appears that Hu Honua will replace some fossil fuel generation and some renewable energy generation. The analysis indicated that on average[,] 42% of Hu Honua generation replaces fossil fuel generation (38 GWh) and 58% of Hu Honua generation replaces renewable energy generation (52GWh).²⁵²

²⁵²Consumer Advocate Second Errata to Supplemental Response to HHB-CA-SIR-16 at 8. Although the Consumer Advocate's analysis of the resources that would be displaced by the Project include the now-withdrawn Puako Solar project, the Commission still finds that the Consumer Advocate's analysis persuasively demonstrates that a significant portion of the generation displaced by the Project would be from other renewable resources. See Consumer Advocate Supplemental Response to HHB-CA-SIR-16, Exhibit HHB-CA-SIR-16, Table 3, "Hu Honua Annual Energy Generation - Consumer Advocate Estimate (MWh)," which reflects that the difference in total generation from the Project with and without the Puako Solar project is not dramatic (approximately 11%), indicating that even without the Puako Solar project, the Consumer Advocate's analysis would still show that a significant amount of the generation displaced by the Project would come from other renewable resources on HELCO's system.

HELCO has acknowledged that adding the Project to its system is likely to result in the displacement of other renewable resources on its system. As stated by HELCO, "[t]he minimum dispatch of Hu Honua makes it impossible to ensure that no renewable resource energy output will be partially displaced by Hu Honua."²⁵³ HELCO has also stated that "many of the new renewable resources will have zero incremental cost and therefore, even [if Hu Honua were] at a lower cost, it would primarily compete with non-zero incremental resources when needed, and be utilized for reserve rather than dispatching at higher output."²⁵⁴

Thus, it is expected that the Project would displace generation from other, lower cost, renewable energy resources on HELCO's system, potentially by a significant proportion, in addition to generation from fossil fuel units.

iii.

The Project Does Not Serve An Urgent System Need

According to HELCO, adding the Project to the grid would not satisfy any urgent grid needs, as determined by the system's

²⁵³HELCO Response to CA/HELCO-SIR-26.c.1, filed on November 18, 2021. See also, HELCO Response to Tawhiri-HELCO-SIR-15.a, filed on November 18, 2021; HELCO Response to PUC-HELCO-IR-21, filed on December 1, 2021; and HELCO Response to CA/HELCO-SIR-28.a.1.b.

²⁵⁴HELCO Response to CA-HELCO-IR-63.b.2.

energy reserve margin, as well as from HELCO's adequacy of supply reports.²⁵⁵ While the Project may provide certain grid services, as described by HELCO and Hu Honua,²⁵⁶ these grid services are not

²⁵⁵See Testimony of Robert Y. Uyeunten, Recording of Hearing, Day 1, March 1, 2022, at 5:00:15-5:02:20 (Mr. Uyeunten indicated that HELCO determines the need for new generation based on a variety of drivers, including the energy reserve margins, the loss of the largest units, and bad weather conditions. Further, Mr. Uyeunten stated that HELCO does not need the Project right now based on the previous drivers), at 5:44:55-5:45:45 (In response to a question regarding whether there is a need for the Project considering the amount of fossil fuel generation that is still on HELCO's grid, Mr. Uyeunten noted that the analysis in the adequacy of supply report finds that the energy reserve margin is satisfied for nearly all the study period, indicating that HELCO does not need the Project); and Day 2, March 2, 2022, at 1:46:50-1:48:20 (Mr. Uyeunten confirmed that his earlier response indicating there is no need for the Hu Honua facility was made in the context of the adequacy of supply reports and whether there is a critical reliability need. Mr. Uyeunten stated that in the absence of an identified reliability need for the Project, the Project's case is partially dependent on economics, the ability to add renewable energy to the system, and the diversity of renewable energy resources on the system).

²⁵⁶See HELCO Response to CA-HELCO-IR-59.a, filed on October 29, 2021 (HELCO anticipates that HH will supply grid services including generation capacity, var support, inertia, short circuit current, frequency response, reserves, and ramping capability). See also Hu Honua Prehearing Testimony, T-1 (Warren Lee) at 9 ("The Project will . . . provide essential grid services that cannot be provided by intermittent forms of renewable energy and that are currently provided by energy produced from fossil fuels. Such essential grid services include MW generation capacity, dynamic var support, inertia support, fault current support, and primary frequency response.")

exclusive to the Project, and could be provided by other existing or future resources.²⁵⁷

On this point, the Commission notes that the Consumer Advocate asserts that firm renewable energy "should generally be procured only if it is at cost-effective rates" and that "any new generation should . . . reduce the Company's customer bills," but that the need for this Project "has not been supported by recent adequacy of supply reports."²⁵⁸

Furthermore, according to HELCO's witnesses, it is uncertain whether adding the Project would accelerate any retirements or removals from service of the existing fossil fuel units on HELCO's grid.²⁵⁹ HELCO stated that it has not officially evaluated accelerated retirements that could occur with the approval of this Amended PPA, but that "it is envisioned that the existing steam fossil fuel units will transition to standby as other resources are monitored for reliable performance for a

²⁵⁷See Testimony of Lisa Dangelmeier, Recording of Hearing, Day 2, March 2, 2022, at 5:44:30-5:45:15 (Ms. Dangelmeier noted that it is theoretically possible to remove fossil fuel power sources and maintain steady mass for any of the steam units if you convert them to synchronous condensers, for example Hill or Puna.)

²⁵⁸See CA PSOP at 7 and 14.

²⁵⁹See Testimony of Robert Y. Uyeunten, Recording of Hearing, Day 1, March 1, 2022, at 5:00:15-5:02:20, at 5:44:55-5:45:45; and Day 2, March 2, 2022, at 1:46:50-1:48:20.

proving period before final retirement determination.”²⁶⁰
This indicates that while the Project may be able to contribute to system conditions to support retirement of fossil fuel units, HELCO does not expect it to facilitate accelerated retirement of any particular unit(s).

iv.

Hu Honua Relies On Unreasonable Assumptions
For Its Bill Impact Analysis Of The Project

Although Hu Honua submitted an alternative analysis which reflects a more modest bill impact,²⁶¹ the Commission does not find this analysis persuasive. In its analysis, Hu Honua assumes that the Project will exclusively displace electricity provided by HELCO’s fossil fuel-based Keahole powerplant to reach the conclusion that the Project will provide a net bill savings.²⁶² This narrowed comparison allows the Project to be modeled as more cost effective, as it eliminates comparison of the Project to other lower-cost renewable resources on HELCO’s system. However, as noted above, the Consumer Advocate has estimated that more than

²⁶⁰See HELCO Response to Tawhiri-HELCO-SIR-23.a.

²⁶¹See Hu Honua PSOP, Exhibit 2.

²⁶²See Hu Honua PSOP, Exhibit 2 at 7.

half of the energy produced by Hu Honua will displace other renewable energy resources.²⁶³

Further, HELCO maintains that the assumption that the Project would only displace Keahole is unrealistic, considering this assumption would be "contrary to the Company's practices and highly unlikely to represent the actual operational conditions."²⁶⁴ Indeed, HELCO objected to a request from Hu Honua to model a simulation where the Project would be dispatched ahead of all fossil fuel resources, stating that such a simulation would violate the principles of economic dispatch governing system operations and would represent "inappropriate and unrealistic" alterations to operational parameters."²⁶⁵ HELCO also argued that presenting multiple scenarios in which assumptions do not reflect their best planning assumptions is significantly less valuable for analysis.²⁶⁶

The Commission agrees that such a scenario would be unrealistic and would largely deprive HELCO of its ability to dispatch its portfolio of grid resources effectively and safely. HELCO's analysis appears more robust, given that it considered

²⁶³See Consumer Advocate Second Errata to Supplemental Response to HHB-CA-SIR-16 at 7-8 and 9.

²⁶⁴See HELCO Response to CA/HELCO-SIR-28.a.1.

²⁶⁵See HELCO Response to HHB-HELCO-SIR-1.a.

²⁶⁶See HELCO Response to CA/HELCO-IR-63.e.3.

escalations in fuel prices, the Amended PPA's energy rates, RPS requirements, and fuel switching,²⁶⁷ whereas Hu Honua's analysis is a simple comparison between the Project and one of the many other units on HELCO's grid that Hu Honua could displace.

Hu Honua also argued that the Amended PPA's estimated bill impact should take into account benefits such as the social cost of carbon. PA Consulting concluded that the Project would result in "social cost savings of \$132 million" (under the Full Dispatch Scenario; reduced to \$68 million under the HELCO Dispatch Scenario of approximately 11.8 MW).²⁶⁸ The Commission does not find this study convincing, though, as the study's estimated social carbon cost savings are premised on unreliable assumptions. First, the study relies on the Project's total net GHG emissions estimated by Ramboll and ERM,²⁶⁹ which the Commission has determined are not dispositive. Furthermore, PA Consulting assumed that the Project would only displace electricity provided by HELCO's fossil fuel based powerplants,²⁷⁰ which, as discussed above, the Commission does not find to be a reasonable

²⁶⁷See HELCO Response to CA/HELCO-SIR-28.a.2.

²⁶⁸Hu Honua Prehearing Testimony, T-7 (Jonathan Jacobs) at 7.

²⁶⁹See Hu Honua Prehearing Testimony, T-7 (Jonathan Jacobs) at 6.

²⁷⁰See Hu Honua Prehearing Testimony, Exhibit Hu Honua-701 at 6.

assumption.²⁷¹ HELCO's dispatch analysis shows that in addition to displacing fossil fuels, Hu Honua will also displace a considerable amount of renewables,²⁷² which PA Consulting's social cost analysis does not consider.²⁷³

Hu Honua also argued that HELCO should redo its bill impact analysis using an updated fuel price forecast. However, even if higher fuel costs were assumed, this would not necessarily address the issue of bill increases attributed to the Project. For example, HELCO has stated that the "large magnitude of the customer bill increases [due to the addition of the Project] suggests that it would take an extreme increase in fossil fuel prices or system demand for the dispatch of the Project to rise substantially above the minimum."²⁷⁴ Further, HELCO states that the renewable energy pricing trends modeled in its Integrated Grid Planning process indicate that HELCO will in the future be "using Hu Honua energy less than other forecasted renewable energy resources."²⁷⁵

²⁷¹C.f. HELCO Response to CA/HELCO-SIR-28.

²⁷²See HELCO Response to CA/HELCO-IR-60, filed on October 21, 2021; and HELCO Response to CA/HELCO-SIR-26.

²⁷³See Hu Honua Prehearing Testimony, Exhibit Hu Honua-701 at 6.

²⁷⁴HELCO Response to HHB-HELCO-IR-16.d, filed on October 21, 2021.

²⁷⁵HELCO Response to CA/HELCO-IR-63.d.

Even assuming, arguendo, that the Commission were to rely upon Hu Honua's assumptions, the Project would still only provide marginal improvements to customer bill impacts and would be attended by significant risk. At Hu Honua's request, HELCO performed a sensitivity analysis in which all unapproved resources previously included in HELCO's bill impact analysis were excluded from consideration. In this analysis, the bill impact and dispatch of the Project do not significantly change until 2045, when HELCO assumes it will transition its fossil fuel units to biodiesel in its resource plan, at which point the high projected cost of biodiesel makes the Project more economical to dispatch for the final years of the Amended PPA (2045-2051).²⁷⁶ The estimated typical bill impact of the Project for this scenario, prior to the fuel switch to biodiesel (2022-2044), averages an increase of \$5.78 per month for the typical residential bill, while the estimated typical bill impact after the fuel switch to biodiesel (2045-2051) averages a savings of \$20.52 per month for the typical residential bill.²⁷⁷ Thus, in this scenario, the high costs and low dispatch of the Project in the first 23 years are partially mitigated by the last seven years of the Amended PPA

²⁷⁶See HELCO Response to HHB-HELCO-SIR-7.b.3.iii, filed on November 18, 2021.

²⁷⁷See HELCO Response to CA/HELCO-IR-63.e.3, Attachment 4.

term, when the Project is modeled to become more economic to dispatch with HELCO's assumed conversion of remaining fossil fuel units to biofuels for RPS compliance purposes in 2045.²⁷⁸

This scenario presents a large amount of risk to customers, as it reflects a "backloading" of customer savings, where ratepayers would likely still experience an increase in monthly bills for more than 20 years, with partially offsetting savings not occurring until far in the future. In addition, HELCO notes that such a narrow comparison does not take into account HELCO's long-term planning efforts,²⁷⁹ nor does it consider renewable goals, system reliability needs, or grid services.²⁸⁰ As such, based on the record before it, the Commission finds that Hu Honua's preferred modeling does not realistically capture likely grid operations or impacts.

Taking the above into consideration, the Commission does not find Hu Honua's alternative analyses convincing, and believes the analyses performed by HELCO and the Consumer Advocate are more reliable.

²⁷⁸See HELCO Response to HHB-HELCO-SIR-7.b.3.iii.

²⁷⁹See HELCO Responses to HHB-HELCO-SIR-4.a and -4.b.2, filed on November 18, 2021.

²⁸⁰See HELCO Response to CA/HELCO-IR-63.e.3.

When adding all of the above considerations to the concerns about the Project's GHG emissions, the Commission does not find the total costs of the Amended PPA reasonable.

D.

Issue No. 4: Whether The Terms Of The PPA
Are Prudent And In The Public Interest,
Given The PPA's Hidden And Long-Term Consequences

For many of the reasons already discussed herein, the Commission finds that the terms of the Amended PPA are not prudent or in the public interest, which are summarized below.

First, it is unclear whether Hu Honua will be able to sequester enough carbon to offset the large amount of GHG emissions produced by the Project over its lifetime. Hu Honua's reliance on local sequestration efforts are based on unreliable assumptions and the likelihood that they will offset the Project's GHG emissions is correspondingly subject to doubt and uncertainty. The highly sensitive nature of the Carbon Calculator leaves little margin for error, and if actual performance for any key emissions categories varies, even slightly, from the ERM Analysis' estimates, it could drastically impact the Project's net GHG impact, and potentially make the Project a net GHG emitter.

Further, Hu Honua's proposal to backstop its Carbon Commitment through the purchase of carbon credits is not reasonably developed and lacks critical details addressing issues

such as a framework for implementation, analysis of potential costs, and means of verification and enforcement. When considering the high amount of GHG emission associated with the Project's operations and the unpredictability of Hu Honua's local sequestration performance, carbon offset costs could be far beyond the \$100,000 to \$450,000 range proposed by Hu Honua. This indicates that Hu Honua may not be adequately prepared to fulfill its Carbon Commitment, exposing ratepayers to the risk that they may not receive the full environmental benefits offered by Hu Honua.

Moreover, should Hu Honua fall short of its carbon offsetting goals as set forth in its Carbon Commitment, it is uncertain whether the Commission would be able to reasonably enforce these commitments on Hu Honua, exposing ratepayers to the risk that the environmental benefits of the Project may not be fully realized.

Second, there are high costs associated with approval of the Amended PPA. The Project is likely to result in a significant bill increase to ratepayers, which is estimated to last through the Amended PPA term.

Third, due to provisions of the Amended PPA, it is likely that HELCO will need to dispatch the Project in an un-economic manner that is expected to displace, in part, other lower-cost

renewable resources.²⁸¹ The Commission does not believe it is prudent to approve new high-cost generation that may prevent new renewables with significantly lower costs from being integrated during low net-load periods, and the Commission observes that high-cost, inflexible generation may hamper the ability of HELCO to interconnect new utility-scale and customer-sited renewable generation. HELCO further notes that the displacement of lower-cost resources is a core feature of the Minimum Dispatch Requirement, as “[a]ny resource with a minimum must-take will need to be operated ahead of lower-cost energy up to that must-run amount, and therefore any must-run constraint will limit cost optimization.”²⁸²

Fourth, it is unclear if the Project will provide any additional benefits to HELCO’s system. Although the Project can provide certain grid services, HELCO has stated that it does not have a current need for the Project. According to HELCO’s witnesses, adding the Project to the grid would not satisfy any urgent grid needs, and it is uncertain whether adding the Project would accelerate any retirement or removal of HELCO’s existing

²⁸¹See HELCO Response to CA/HELCO-SIR-26.c.1.

²⁸²HELCO Response to PUC-HELCO-IR-21 at 1.

fossil fuel units.²⁸³ While the Project may provide certain grid services, these grid services are not exclusive to the Project and could be provided by other existing or future resources.²⁸⁴

Fifth, it is unclear what remedy ratepayers would have if Hu Honua were to withdraw or terminate the Amended PPA midway through the PPA term. Based on the record, many of the Project costs are front-loaded, while many of the benefits are back-loaded. If Hu Honua were to terminate or assign the Amended PPA midway through the 30-year term, ratepayers would have paid the higher costs of the PPA and GHG emissions of the Project, but not have realized many of the benefits, potentially including sequestration and reductions in carbon emissions. Similarly, as discussed above, if Hu Honua were to encounter difficulties meeting its Carbon Commitment, it is unclear what recourse the Commission, and through extension, ratepayers, would have to enforce the delivery of the benefits promised by Hu Honua.

²⁸³See Testimony of Robert Y. Uyeunten, Recording of Hearing, Day 1, March 1, 2022, at 5:00:15-5:02:20, at 5:44:55-5:45:45; and Day 2, March 2, 2022, at 1:46:50-1:48:20.

²⁸⁴See Testimony of Lisa Dangelmeier, Recording of Hearing, Day 2, March 2, 2022, at 5:44:30-5:45:15 (Ms. Dangelmeier notes that it is theoretically possible to remove fossil fuel power sources and maintain steady mass for any of the steam units if you convert them to synchronous condensers, for example Hill or Puna.)

E.

Disposition Of HELCO's Letter Request

Based on the above, the Commission denies HELCO's Letter Request for approval of the Amended PPA. However, this denial is without prejudice. While the Commission is declining to approve the Amended PPA, based on the record before it in this docket, this is not to say that the Project cannot be re-visited in a different context. For example, Hu Honua may bid the Project in a future round of competitive bidding, where, if selected, it would have the opportunity to re-negotiate a new PPA with HELCO, for review by the Commission.

F.

Request For Preferential Rates

Pursuant to HRS § 269-27.3, the utility, "[u]pon receipt of a bona fide request" is required to forward the request to the Commission "for approval." The statute is silent on what further action is required, and the Commission reads this as authorizing the Commission to exercise its discretion in reviewing any such request.²⁸⁵

²⁸⁵C.f. Del Monte Fresh Produce (Hawaii), Inc. v. International Longshore and Warehouse Union, Local 142, AFL-CIO, 112 Hawaii 489, 499-500, 146 P.2d 1066, 1076-1077 (2006) ("To the extent that the legislature has authorized an administrative agency to define the parameters of a particular statute, that agency's interpretation should be accorded deference.");

In this instance, given the Commission's denial of HELCO's Letter Request based on its consideration of the GHG and other environmental impacts under HRS § 269-6(b), and concomitant denial to recover purchased energy costs under HRS § 269-16.22, the Commission concludes that review of Hu Honua's request for preferential rates is unwarranted under the circumstances, and declines to exercise its authority to review Hu Honua's request.

V.

SUMMARY OF FINDINGS OF FACT AND CONCLUSIONS OF LAW

Based on the foregoing, the Commission finds and concludes as follows:

Carlisle v. One(1) Boat, 1198 Hawai'i 245, 253, 195 P.3d 1177, 1185 (2008) ("Further, '[t]his court has accorded persuasive weight to the construction of statutes by administrative agencies charged with overseeing and implementing a particular statutory scheme.'") (citing Sam Teague, Ltd. v. Hawai'i Ci. Rights Comm'n, 89 Hawai'i 269, 276 n. 2, 971 P.2d 1104, 1111 n. 2 (1999); Haole v. State, 111 Hawai'i 144, 150, 140 P.3d 377, 383 (2006) ("Where an agency is statutorily responsible for carrying out the mandate of a statute which contains broad or ambiguous language, the agency's interpretation and application of the statute is generally accorded judicial deference on appellate review.") (citing Vail v. Employees' Retirement System, 75 Haw. 42, 59, 856 p.2d 1227, 1237 (1993)); and Gillan v. Government Employees Ins. Co., 119 Hawai'i 109, 117-118, 194 P.3d 1071, 1079-1080 (2008) (Deference to an agency's interpretation of ambiguous statutory language reflects a sensitivity to the proper roles of the political and judicial branches, insofar as the resolution of ambiguity in a statutory text is often more a question of policy than law)).

1. The Commission is not convinced that the Project will result in long-term environmental benefits for Hawai'i Island. As such, the Commission is concerned that reliance on energy produced at the Project could result in long-term environmental and public health costs.

2. According to Hu Honua, the Project is estimated to produce approximately 8,035,804 metric tons of CO₂e over the term of the Amended PPA. As the vast majority of these emissions are associated with the harvesting and stack emissions associated with operating the Project, there is a high degree of confidence that they will result if the Amended PPA is approved.

3. To mitigate these significant GHG emissions, Hu Honua has committed to sequester carbon emissions, or to purchase carbon offsets, in sufficient amounts to ensure that the Project is: (i) cumulatively carbon negative by 30,000 metric tons by the end of the Amended PPA term (2051); and (ii) carbon negative in the year 2035 and each year thereafter until the end of the Amended PPA term (assuming operations begin in 2022).

4. The Commission does not find this claim to credible.

A. A number of assumptions underlying the ERM Analysis' sequestration results are speculative.

B. "Net Aboveground Biomass Growth On Island" is the greatest contributor to sequestration, totaling an estimated 5,882,322 MT CO₂e sequestered.

C. Regarding sequestration estimates for 2017-2021, Hu Honua has not been clear in the record regarding its past harvesting efforts, and it is unclear whether harvesting has occurred on the plantations leased by CNRR during this period and whether such operations have been incorporated into the ERM Analysis.

D. Regarding sequestration estimates for 2022-2051, the ERM Analysis assumes continuation and/or expansion of Hawai'i Island leases; however, at this time, lease agreements with the existing Hawai'i Island locations do not extend through the 30-year term of the PPA.

E. Although Hu Honua states that it is in negotiations to extend the existing leases, no lease extensions or new leases have been obtained, and Hu Honua has indicated that completing negotiations for new or extended leases will require Commission approval of the Amended PPA first.

F. Hu Honua's proposal to provide, within 60 months of a final non-appealable approval order from the Commission, documentation demonstrating that it has secured additional acreage on Hawai'i Island, is not premised on any binding agreement, but arises from "good faith discussions" with a potential

landowner. Further, it is unclear what "additional acreage" constitutes in this situation and whether it would allow Hu Honua to achieve sequestration as set forth in the ERM Analysis.

G. If Hu Honua is unable to extend or secure new lease agreements on Hawai'i Island, it would presumably also need to procure feedstock from other islands in the State, the continental United States or internationally, which raises the possibility of additional GHG emissions associated with cultivating, harvesting, and transporting feedstock from the continental United States to Hawai'i Island that are not currently captured in the ERM Analysis.

H. Another significant source of CO₂e sequestration comes from trees planted under the NFF Agreement, which is estimated to result in approximately 437,500 MT CO₂e. However, these figures are based on a generalized information about carbon sequestration rate, tree survival rate, and tree lifetime Hu Honua states it received from NFF, and may not accurately reflect sequestration performance, which depends on specific data regarding tree species, planting schedules, location, survival rate, growth rate, and sequestration rate.

I. Hu Honua also refers to sequestration resulting from the OTP Agreement and from the FHVNP Agreement; however, as neither of these agreements are modeled in the ERM Analysis, it is impossible to reasonably estimate, based on the record,

what amount, if any, of sequestered CO₂e may arise from these agreements.

J. The ERM Analysis is highly sensitive to inputs from key emissions categories, with small changes having a significant impact on overall results.

K. The four categories contributing the most towards GHG emissions increases and reductions are: above ground carbon sequestration, stack emissions, belowground carbon sequestration (i.e., carbon sequestered and stored belowground in roots and soil), and belowground carbon loss/emissions (i.e., loss of carbon stored below ground associated with activities such as harvesting).

L. The Commission's review indicates that even a one-percent deviation in any of these four categories could cause the ERM Analysis' total estimated amount of CO₂e emissions to fluctuate significantly, which could turn the Project into a net GHG emitter.

5. HELCO submitted a separate GHG analysis performed by Ramboll, which reported the total net GHG impact associated with the Project, and relied on Ramboll's independent estimate of avoided GHG emissions associated with the Project, combined with ERM's estimates for the Project's lifecycle GHG impact, to arrive at a total "Net Emissions" GHG impact for the Project.

A. Ramboll defines the Project's Net Lifecycle Emissions as the Avoided Lifecycle Emissions less the Project Lifecycle Emissions, which Ramboll relied on ERM to provide.

B. Ramboll's overall estimate for Project's Net Lifecycle Emissions is not dispositive, given the concerns with the ERM Analysis' sequestration results, which could affect the Project Lifecycle Emissions, and thereby change the overall Project Net Lifecycle Emissions results. In addition, acceleration in the expected growth of other renewable projects on Hawai'i Island during the Amended PPA term could displace fossil fuel-based units on HELCO's system, which could affect Ramboll's Avoided Lifecycle Emissions calculation, and thereby affect the resulting Project Net Lifecycle Emissions.

6. There are additional concerns with the ERM Analysis, which undermines the credibility of its results.

A. The Carbon Calculator included as part of the ERM Analysis contains a number of hard-coded cells, which limits the Commission's ability to assess the reasonableness of the Carbon Calculator's inputs and outputs.

B. Even assuming, arguendo, that the Carbon Calculator was not subject to the above uncertainties, the purported GHG benefits of the Project may not result until very late in the Amended PPA's 30-year term.

C. Review of Hu Honua pledges to be carbon negative on an annual basis by the end of 2035, and each year thereafter until the end of the PPA term (assuming operations begin in 2022) reveals that it is premised on comparing GHG emissions and sequestration in each particular year of the Amended PPA, and does not consider the cumulative impact of prior years' worth of emissions and sequestration.

D. When analyzed from a Cumulative Basis, that is, taking into account all of the prior years' worth of accumulated GHG emissions and sequestration, total carbon sequestration does not overtake total GHG emissions until 2047, near the end of the Amended PPA term, and reflects a practical "frontloading" of GHG emissions and "backloading" of GHG reductions, and demonstrates that the Project is estimated to increase GHG emissions for decades before the claimed sequestration "catches up" to emissions and beings to result in "carbon negativity."

7. Hu Honua's proposed backstop of ensuring net carbon negativity through the purchase of carbon offsets if sequestration efforts are insufficient is not adequately developed.

A. Aside from stating that Hu Honua would purchase carbon offsets from "reputable sources using Nature Based offsets to ensure growth of vegetation (e.g., VERRA or ACR)," Hu Honua has offered little detail about where or how these carbon offsets would be sourced, purchased, and verified.

B. Hu Honua has also assumed that it can purchase carbon offsets for approximately \$15 per metric ton, which may be a reasonable valuation based on today's voluntary carbon offset market, but it is uncertain whether the price of carbon offsets will remain at this level or increase throughout the 30-year PPA term.

C. The potential fluctuations in sequestration in any given year of the Amended PPA's 30-year term indicate that Hu Honua's proposed reserve fund of up to \$450,000 maybe insufficient to support its Carbon Commitment.

D. Although Hu Honua has offered to increase this seed money to a "higher amount" if deemed "appropriate," the applicants carry the burden of proof, and it is not for the Commission to undertake this responsibility for Hu Honua.

E. Regarding Hu Honua's offer to "pay a monetary amount for the purpose of procuring sufficient carbon offsets," Hu Honua has only recently identified the DLNR's 100 Million Tree Program as a potential candidate, and has not offered sufficient information about how this program could be used to support Hu Honua's Carbon Commitment in a reasonable and verifiable manner.

F. There is no proposed framework for the Commission to review, monitor, and/or verify carbon offsets purchased by Hu Honua.

G. Furthermore, as the Commission's authority is limited to public utilities operating within the State, it is unclear what recourse the Commission would have if these carbon offset projects were found to operating in a manner inconsistent with Hu Honua's Carbon Commitment.

8. It is unclear whether the Commission would be able to enforce the Carbon Commitment on Hu Honua.

A. Although Hu Honua has "stipulate[d] to ongoing review by the [Commission] for purposes of reviewing and enforcing Hu Honua's carbon negative commitments," and "agree[d] to cure any shortcomings within a reasonable period of time,"²⁸⁶ it is unclear what would result if Hu Honua were to disagree with or object to a Commission finding that an aspect of the Carbon Commitment was not being met.

B. Second, aside from Hu Honua's assertions that it will comply with ongoing Commission review, there would be few options if Hu Honua decided to ignore the Commission's authority, which may not be suited to the situation and which may have adverse consequences to ratepayers.

9. It is unclear what impact Hu Honua's intent to sell excess energy in the form of hydrogen may have on the Project's

²⁸⁶Hu Honua Post-Hearing Brief at 5.

GHG emission profile, as Hu Honua does not account for these emissions in the Ramboll Analysis or the ERM Analysis.

10. For these preceding reasons, the Commission also finds and concludes that the Project is likely to emit a significant amount of GHG emissions, and Hu Honua has not reasonably demonstrated that it will be able to successfully offset these emissions, creating the potential risk that the Project could result in net GHG emissions.

11. The Commission finds and concludes that Act 82 has not modified the scope of the Commission's review of GHG impacts associated with the Project, as set forth under the prior version of HRS § 269-6(b), and as discussed by the Hawaii Supreme Court in HELCO I and HELCO II.

A. Further, the Commission takes note of the Court's explicit instructions to the Commission in HELCO I and HELCO II, and reads them as explicitly contemplating that review of the Amended PPA's terms, including its pricing, would be considered on remand, along with the Project's GHG impact.

B. Accordingly, the Commission finds that review of the total costs of the Amended PPA is within the scope of this issue on remand.

12. Due various provisions of the Amended PPA, including the pricing structure and Minimum Dispatch Requirement,

the Project is expected to be dispatched near its contractually minimal level.

A. HELCO's production simulations indicate that based on the Amended PPA's pricing structure, the Project will likely be dispatched, on average, at a level of 11.8 MW, which near the Amended PPA minimum level of 10 MW, for much of the 30-year term.

B. HELCO's simulation results have been corroborated by the Consumer Advocate's independent review and analysis of HELCO's simulation data.

13. Accordingly, the Project is estimated to be a relatively high cost resource on HELCO's system, with a revenue requirement equivalent to approximately 40.64 cents per kWh over the term of the Amended PPA.

A. HELCO's bill impact analysis indicates that this would result in a typical residential customer likely experiencing a monthly bill increase of approximately \$10.97, on average, across the 30-year term of the Amended PPA.

B. Relatedly, HELCO as asserted that, given the Amended PPA's pricing and Minimum Dispatch Requirement, "there is no method of dispatch, operation, or modeling assumptions that could produce a net savings to the system or customers."²⁸⁷

²⁸⁷HELCO Response to CA/HELCO-SIR-28.a.1.b.

14. Taking the Amended PPA's pricing and minimum dispatch requirements into account, HELCO's modeling shows that the Project will likely displace other, more economic, renewable resources on HELCO's system.

A. HELCO has acknowledged that "[t]he minimum dispatch of Hu Honua makes it impossible to ensure that no renewable resource energy output will be partially displaced by Hu Honua."²⁸⁸

B. This assessment has been corroborated by the Consumer Advocate's own analysis, which concludes that more than half (approximately 58%) of the generation displaced by the Project over the Amended PPA term would be other renewable generation.

15. According to HELCO, adding the Project to the grid would not satisfy any urgent grid needs, as determined by the system's energy reserve margin, as well as from HELCO's adequacy of supply reports.

A. While the Project may provide certain grid services, these grid services are not exclusive to the Project and may be provided by other existing or future resources on the HELCO system.

²⁸⁸HELCO Response to CA/HELCO-SIR-26.c.1. See also, HELCO Response to Tawhiri-HELCO-SIR-15; HELCO Response to PUC-HELCO-IR-21; and HELCO Response to CA/HELCO-SIR-28.a.1.b.

B. Furthermore, it is uncertain whether adding the Project would accelerate any retirements or removals of existing fossil fuel units from HELCO's grid.

16. Hu Honua's alternative bill impact analysis is not convincing, as it assumes that the Project will exclusively displace electricity provided by HELCO's fossil fuel Keahole powerplant.

A. This assumption runs contrary to the Consumer Advocate's production simulation analysis, which concludes that the Project is expected to displace other renewable energy resources, in addition to fossil fuel units.

B. This assumption also contradicts HELCO's operating practices, which lead HELCO to characterize such an assumption as "highly unlikely to represent the actual operational conditions."²⁸⁹

C. HELCO has also objected to a related request from Hu Honua to model a scenario where the Project would be dispatched ahead of all other fossil fuel resources on the basis that it would violate the principles of economic dispatch.

D. The Commission agrees that such a scenario is unrealistic, and finds HELCO's and the Consumer Advocate's analyses more credible.

²⁸⁹HELCO Response to CA/HELCO-SIR-28.a.1.

E. Further, Hu Honua's estimated social carbon cost savings are premised on unreasonable assumptions, such as the results of the ERM Analysis, and that the Project would only displace electricity provided by HELCO's fossil fuel based powerplants.

17. Even assuming, arguendo, that the Commission relied on Hu Honua's assumptions for a bill impact analysis, the Project's bill impact would only marginally improve, and be accompanied by significant risk.

A. At Hu Honua's request, HELCO performed a sensitivity analysis in which all unapproved resources previously included in HELCO's bill impact analysis were excluded from consideration.

B. Under this analysis, the Amended PPA is able to produce a customer bill savings, but only because of changes modeled to occur in the final years of the PPA (2045-2051), where HELCO is assumed to transition its fossil fuel units to biodiesel. Due to the estimated high cost of biodiesel, these final seven years of the Amended PPA term offset the high costs and low dispatch of the first 23 years.

C. Thus, even under this scenario, benefits are "backloaded," with customers expected to experience bill increases during the first 23 years of the Amended PPA, with partially offsetting savings not occurring until far in the future during

the last seven years of the Amended PPA, which increases risk to customers.

18. Taking the above into account, the Commission finds and concludes that the Amended PPA's total costs are not reasonable in light of the Project's potential for GHG emissions.

19. In addition upon considering the concerns summarized above, including concerns with Project GHG emissions, the total costs of the Amended PPA, and the impact the Project is expected to have on HELCO's system, the Commission finds and concludes that the terms of the Amended PPA are not prudent and in the public interest, upon considering the Amended PPA's hidden and long-term consequences.

A. Based on the record, the Amended PPA is expected to result in an increase in customer bills and require operation of the Project in a manner that displaces lower cost renewable resources.

B. Furthermore, many of the costs of the Amended PPA are front-loaded (e.g., the bill impact for the Amended PPA is much higher in early years of the Amended PPA), while many of the estimated benefits are back-loaded (e.g., much of the Amended PPA's customer bill savings are estimated to occur in 2045 when HELCO converts its fossil fuel plants to biodiesel, which is expected to be more expensive than biomass, and the majority of GHG

sequestration is estimated to occur during the latter half of the Amended PPA term).

C. If Hu Honua were to withdraw or terminate the Amended PPA partly through the 30-year term, HELCO ratepayers may have paid the higher costs of the Amended PPA (in both monetary and environmental ways) without receiving the full corresponding benefits.

D. In comparison, HELCO has stated that it does not have a current need for the Project, and that the grid services the Project offers can be provided through procuring other resources, and that the Project is not expected to expedite the retirement of any fossil fuel plants.

20. Based on the above, and considering the record in this proceeding and the statement of issues on remand, the Commission concludes that HELCO has not sufficiently met its burden for approval of its Letter Request.

In light of the attendant concerns with the Amended PPA and Project, the Commission determines that it is not necessary for it to exercise its authority to review Hu Honua's request for preferential rates under these circumstances.

VI.

ORDERS

THE COMMISSION ORDERS:

1. HELCO's Letter Request for approval of the Amended PPA is denied.
2. This docket is closed.

DONE at Honolulu, Hawaii MAY 23, 2022.

PUBLIC UTILITIES COMMISSION
OF THE STATE OF HAWAII

By James P. Griffin
James P. Griffin, Chair

By Jennifer M. Potter
Jennifer M. Potter, Commissioner

APPROVED AS TO FORM:

Mark Kaetsu
Mark Kaetsu
Commission Counsel

2017-0122.ljk

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF HAWAII

In the Matter of the Application of)	
)	
HAWAII ELECTRIC LIGHT COMPANY, INC.)	DOCKET NO. 2017-0122
)	
For Approval of a Power Purchase)	
Agreement for Renewable Dispatchable)	
Firm Energy and Capacity.)	
_____)	

DISSENT OF LEODOLOFF R. ASUNCION, JR., COMMISSIONER

I respectfully dissent from the majority's decision ("Majority Decision") denying¹ the Amended and Restated Power Purchase Agreement between HELCO and Hu Honua ("Amended PPA").²

¹The Parties to this docket are HELCO, HU HONUA BIOENERGY, LLC ("Hu Honua") (collectively, HELCO and Hu Honua are referred to as "Applicants"), and the DIVISION OF CONSUMER ADVOCACY ("Consumer Advocate"). The Commission has also granted Participant status to LIFE OF THE LAND ("LOL"), TAWHIRI POWER, LLC ("Tawhiri"), and HAMAKUA ENERGY, LLC ("Hamakua"). See Order No. 34554, "Opening a Docket to Review and Adjudicate Hawaii Electric Light Company, Inc.'s Letter Request for Approval of Amended and Restated Power Purchase Agreement, Filed in Docket No. 2012-0212 on May 9, 2017," filed May 17, 2017 ("Order No. 34554"). On January 12, 2022, participant Hamakua Energy officially withdrew from this proceeding.

²"Hawaii Electric Light Company, Inc.'s Amended and Restated Power Purchase Agreement dated May 5, 2017," filed May 9, 2017. The project that is the subject of the Amended PPA is referred to herein as "the Project."

I.

INTRODUCTION³

On June 30, 2021, the Commission reopened the instant docket⁴ to consider narrow issues related to the greenhouse gases ("GHG") emitted from the Project, as clarified by the Hawaii Supreme Court's decision in the Matter of Hawaii Elec. Light Co., Inc., 149 Hawai'i 239, 487 P.3d 708 (2021), filed on May 24, 2021 ("HELCO II"). Based on a review of the entire record, including the evidentiary hearing held in this matter in March 2022 ("Evidentiary Hearing"),⁵ the evidence clearly establishes that the Applicants have met their burden in showing that the Project will result in a significant reduction in GHG emissions over the course of the 30-year Amended PPA term, and consequently, that the costs of the Amended PPA are reasonable in light of the potential for GHG emissions.

³The Majority Decision includes a discussion of the procedural background of this proceeding so it is not restated here.

⁴Order No. 37852, "Reopening the Docket," filed on June 30, 2021, at 12 ("Order No. 37852").

⁵See Notice of Evidentiary Hearing, filed on December 23, 2021; and Letter From: Commission To: Service List Re: Docket No. 2017-0122 - For Approval of a Power Purchase Agreement for Renewable Dispatchable Firm Energy and Capacity, "Notice of Hearing Recording," filed on March 8, 2022 (making the recording of the Evidentiary Hearing held from March 1-4 and 7, 2022, available to the Parties and Participants (accessed through YouTube at: https://www.youtube.com/channel/UCBVv_-iAjybJFDSKbTZ3hYA)).

II.

THE MAJORITY DECISION TO DENY THE AMENDED PPA IS BASED ON ISSUES OUTSIDE THE SCOPE OF THE HELCO II REMAND

The Commission first approved the Amended PPA in 2017 in Decision and Order No. 34726⁶ on the basis that “[t]he purchased power costs and arrangements set forth in the [Amended] PPA appear reasonable, prudent, in the public interest, and consistent with HRS chapter 269 in general[.]”⁷ The Commission stated that while it “finds the pricing to be reasonable, the [C]ommission makes clear that its decision to approve the [Amended] PPA is not based solely on pricing but includes other factors such as the State’s need to limit its dependence on fossil fuels and mitigate against volatility in oil pricing.”⁸

LOL subsequently appealed the 2017 D&O, and the Hawai’i Supreme Court issued its decision in the Matter of Hawaii Elec. Light Co., Inc., 145 Hawai’i 1, 445 P.3d 673 (2019) (“HELCO I”), remanding the matter to the Commission for the *limited* purposes of: (1) completing sufficient analysis of the impacts underlying the Project on GHG emissions; and (2) allowing LOL an opportunity to meaningfully participate in the docket with respect

⁶Decision and Order No. 34726, filed on July 28, 2017 (“2017 D&O”).

⁷2017 D&O at 60.

⁸2017 D&O at 60.

to its right to a clean and healthful environment, as defined by HRS Chapter 269.⁹ No other issues, including the pricing or costs associated with the Amended PPA, were discussed or adjudicated by the Hawaii Supreme Court.¹⁰

On remand from HELCO I, the Commission issued a decision stating that the waiver granted to HELCO from the Commission's Framework for Competitive Bidding, previously issued pursuant to the 2017 D&O, was not appropriate, and thus denied approval of the Amended PPA on the basis of the waiver, without consideration of GHG emissions.¹¹

Citing the Commission's inconsistency with the Court's remand instructions, Hu Honua filed an appeal, which resulted in

⁹See HELCO I, 145 Hawai'i at 26, P.3d at 698; HELCO II, 149 Hawai'i at 242, 487 P.3d at 711.

¹⁰In its appeal, LOL raised the following three points of error: (1) the Commission was required under HRS § 269-6(b) to explicitly consider GHG emissions in determining whether the costs of the Amended PPA were reasonable; (2) LOL was denied due process in its efforts to protect its right to a clean and healthful environment, as defined by HRS Chapter 269, by the Commission's restriction of its participation in the 2017 Docket; and (3) the Commission erred in denying its request to upgrade its status from "participant" to "intervenor." HELCO I, 145 Hawai'i at 10, P.3d at 682.

¹¹Order No. 37205, "Denying Hawaii Electric Light Company, Inc.'s Request for a Waiver and Dismissing Letter Request for Approval of Amended and Restated Power Purchase Agreement," filed July 9, 2020 ("Order No. 37205"); see also Order No. 37306, "(1) Denying Hu Honua Bioenergy, LLC's Motion for Reconsideration of Order No. 37205, Issued July 8, 2020, Filed July 20, 2020; and (2) Addressing Related Procedural Motions," filed September 9, 2020.

HELCO II, wherein the Hawaii Supreme Court re-affirmed and reiterated its instructions in HELCO I that “[o]n remand, the PUC shall give explicit consideration to the reduction of [greenhouse gas] emissions in determining whether to approve the [Amended] PPA, and make the findings necessary for this court to determine whether the PUC satisfied its obligations under HRS § 269-6(b).”¹² HELCO II also confirmed that “the court [in HELCO I] explicitly delimited the purpose of the remand” and that “[t]hese remand instructions circumscribed the scope of the attendant vacatur.”¹³ The Court thus remanded the matter for a second time, and reiterated its instructions previously provided in HELCO I that the post-remand hearing:

must afford LOL an opportunity to meaningfully address the impacts of approving the Amended PPA on LOL’s members’ right to a clean and healthful environment, as defined by HRS Chapter 269. The hearing must also include express consideration of GHG emissions that would result from approving the Amended PPA, whether the cost of energy under the Amended PPA is reasonable in light of the potential for GHG emissions, and whether the terms of the Amended PPA are prudent and in the public interest, in light of its potential hidden and long-term consequences.¹⁴

¹²HELCO II, 149 Hawai‘i at 240, 487 P.3d at 709 (emphasis in original) (quoting HELCO I, 145 Hawai‘i at 25, P.3d at 697).

¹³HELCO II, 149 Hawai‘i at 240, 487 P.3d at 709.

¹⁴HELCO II, 149 Hawai‘i at 242, 487 P.3d at 711 (quoting HELCO I, 145 Hawai‘i at 26, P.3d at 698).

As noted in HELCO II, the Court's instructions on remand circumscribed the scope of the vacated PUC decision and *limited* the issues on remand in the Evidentiary Hearing to: (1) explicit consideration to the reduction of GHG emissions associated with the Project; and (2) allowing LOL its right to meaningfully address the impacts of approving the Amended PPA with respect to its right to a clean and healthful environment, as defined by HRS Chapter 269. In my opinion, the overwhelming testimony and evidence in the record clearly demonstrates that both issues have been addressed.

Despite the Hawaii Supreme Court's explicit instructions, the Majority considered total costs, including energy and capacity costs, instead of the "hidden" costs associated with or attributable to GHG emissions. Given that "administrative agencies are bound by reviewing courts' remand orders,"¹⁵ and that the Majority's ruling undermines the "true intent and meaning" of the Hawaii Supreme Court's mandate,¹⁶ I respectfully disagree with the Majority's decision to deny approval of the Amended PPA to the extent that it is based on a consideration of issues outside the explicit directives of the Hawaii Supreme Court in HELCO I and HELCO II, including the pricing

¹⁵HELCO II, 149 Hawai'i at 241, 487 P.3d at 710.

¹⁶HELCO II, 149 Hawai'i at 241, 487 P.3d at 710.

of the Amended PPA, which has not changed since the Commission approved the Amended PPA in 2017 and which was not raised on appeal.

III.

THE EVIDENCE SUPPORTS THAT THE PROJECT WILL RESULT IN A SIGNIFICANT REDUCTION IN GHG EMISSIONS AND SATISFIES THE HAWAII SUPREME COURT'S MANDATE TO GIVE EXPLICIT CONSIDERATION TO THE REDUCTION OF GHG EMISSIONS PURSUANT TO HRS § 269-6(b)

A.

The Evidence Demonstrates that the Project Will Result in Significant Reduction in GHG Emissions

In Order No. 37852, as modified by Order No. 37910,¹⁷ with respect to the GHG emissions associated with the Project, the Commission set forth Issues 1., 1.a, and 2., which provide:

1. What are the long-term environmental and public health costs of reliance on energy produced at the proposed facility?
 - a. What is the potential for increased air pollution due to the lifecycle GHG emissions of directly attributed the Project, as well as from earlier stages in the production process?

¹⁷Order No. 37910, "(1) Denying Life of the Land's Motion for Reconsideration/Clarification of Order No. 37852 Filed July 12, 2021; (2) Denying Tawhiri Power LLC's Motion for Reconsideration of Order No. 37852, Filed on June 30, 2021, Filed July 12, 2021; (3) Denying Hu Honua Bioenergy, LLC's Motion for the Commission to Consider Act 82 and Address its Impact on Order No. 37852 Reopening Docket Filed July 20, 2021; (4) Partially Granting the Division of Consumer Advocacy's Motion for Leave to Respond Filed July 23, 2021; and (5) Dismissing All Other Related Procedural Motions," filed on August 11, 2021 ("Order No. 37910"), at 32.

2. What are the GHG emissions that would result from approving the Amended PPA?¹⁸

As discussed below, the undisputed evidence shows that the Project will significantly reduce GHG emissions over the 30-year term of the Amended PPA.¹⁹

Pursuant to the respective GHG analyses provided by HELCO's consultant Ramboll US Consulting, Inc. ("Ramboll") and Hu Honua's consultant Environmental Resource Management ("ERM"), the Project will result in a Net Lifecycle GHG Emission Reduction of 1,464,742 metric tons ("MT") of CO₂e over the 30-year term of the Amended PPA.²⁰ This total emissions reduction consists of the estimated Avoided Lifecycle emissions²¹ of 1,434,243 MT CO₂e²² and estimated Project Lifecycle GHG emissions of -30,499 MT CO₂e.²³

¹⁸Order No. 37910 at 32.

¹⁹See HELCO Response to PUC-HELCO-IR-17.b, Attachment 3 "Additional Hu Honua GHG Analysis," prepared by Ramboll, filed on November 29, 2021 ("Ramboll Additional Hu Honua GHG Analysis"), at 1-61, including Attachment B: Project GHG Emissions Analysis Conducted by ERM (including Table 13: Summary Table) ("ERM Analysis").

²⁰Ramboll Additional Hu Honua GHG Analysis at 3, 5, 10, 11, and 16.

²¹According to Ramboll, "[a]voided GHG emissions represents emissions that would be avoided and would not be emitted to the atmosphere if the Project is approved and built." Ramboll Additional Hu Honua GHG Analysis at 9.

²²Ramboll Additional Hu Honua GHG Analysis at 9, 11, and 15.

²³Ramboll Additional Hu Honua GHG Analysis at 6, 11, and 14. According to ERM, the Project Lifecycle GHG emissions account for

Additionally, while not a requirement in this proceeding, to ensure that the Project Lifecycle GHG emissions reduction that ERM projected is realized, Hu Honua has made firm commitments and agreed to, as a condition of approval of the Amended PPA, to the Project being: (1) at least 30,000 MT carbon negative cumulatively over the 30-year term of the Amended PPA (no matter the level of actual dispatch); and (2) carbon negative by the year 2035 and each year thereafter until the end of the PPA term (assuming operations allowed to begin in 2022).²⁴ No other Party or Participant has offered an independent analysis to substitute or rebut Hu Honua and HELCO's respective 2021 GHG analyses or proffered any substantial evidence that undermines the ultimate conclusions of their analyses indicating that the Project will result in a significant reduction of GHG emissions. Additionally, there is no material evidence in the record that contradicts the

all lifecycle stages such as raw materials and extraction, transportation, construction, operations & maintenance, and decommissioning & disposal, as well as boiler combustion emissions, carbon sequestration, harvesting equipment, site preparation, electricity use, transportation, fuel production, and production of fertilizer. ERM Analysis at 2 (referenced in the Ramboll Additional Hu Honua GHG Analysis at 6).

²⁴"Hu Honua Bioenergy LLC's Prehearing Testimonies ("Prehearing Testimony of _____"); Exhibits 'Hu Honua-100' - 'Hu Honua-800'; and Certificate of Service," filed on September 16, 2021, at Hu Honua T-1 at 7, 27, and 29-31.

Applicants' GHG Analyses,²⁵ suggesting that HELCO and Hu Honua's assumptions and methodologies are indeed reasonable.

For example, the Consumer Advocate's witness Michelle Daigle, Ph.D. ("Dr. Daigle") testified that she did not disagree with the statement that "[a]ccording to ERM, the Project will be more than 30,000 [MT CO₂e] carbon negative cumulatively over the 30-year term of the PPA,"²⁶ and that she did not have any criticism of ERM's accounting of the actual stack emissions from the Project.²⁷ Dr. Daigle also testified that she did not dispute the methodologies in Ramboll's GHG analysis,²⁸ which shows the Project will result in 1,434,243 MT CO₂e in Avoided Lifecycle GHG emissions. Hu Honua's witness, Dr. David Weaver ("Dr. Weaver") of ERM, testified to the conservative nature of ERM's analysis, explained in depth that such analysis overestimates the Project GHG emissions and underestimates sequestration, will hold Hu Honua to a higher bar, and in reality, will result in the Project negating even more emissions than what is reflected in

²⁵"Hawaii Electric Light Company, Inc.'s Post-Hearing Brief; and Certificate of Service," filed on March 29, 2022, at 11-12.

²⁶Testimony of Michelle Daigle, Recording of Hearing, Hearing Day 4, March 4, 2022, at 5:48:03-5:48:50.

²⁷Testimony of Michelle Daigle, Recording of Hearing, Hearing Day 4, March 4, 2022, at 5:42:43-5:43:22.

²⁸Testimony of Michelle Daigle, Recording of Hearing, Hearing Day 4, March 4, 2022, at 2:22:49-2:23:11.

the analysis.²⁹ HELCO's witness Dr. Abigail Kirchofer ("Dr. Kirchofer") of Ramboll confirmed her understanding that the Project would still reduce GHG emissions even if the Avoided Lifecycle GHG emissions were not accounted for, given the findings of the ERM Project GHG analysis and Hu Honua's commitment to reducing emissions separate from any considerations of the avoided emissions due to displaced fossil fuel electricity.³⁰

Further, Hu Honua agreed on the record to adopt any reasonable assumptions and methodologies suggested by the Commission, or any other Party or Participant have offered. Hu Honua clarified at the Evidentiary Hearing³¹ and reinforced through its Post-Hearing Brief,³² that it agreed to supplementary conditions of approval that would enable the Commission to hold Hu Honua accountable to its carbon negative commitments, some of which were also proposed by the Consumer Advocate in its

²⁹Testimony of David Weaver, Recording of Hearing, Hearing Day 2, March 2, 2022, at 5:04:49-5:05:45.

³⁰Testimony of Abigail Kirchofer, Recording of Hearing, Hearing Day 2, March 2, 2022, at 2:20:19-2:20:54.

³¹See generally Testimony of Warren Lee, Recording of Hearing, Hearing Day 2, March 2, 2022, beginning at 6:22:25.

³²"Hu Honua Bioenergy, LLC's Post-Hearing Brief; Exhibits 'A'-'F'; and Certificate of Service," filed on March 29, 2022 ("Hu Honua Post-Hearing Brief"), at 27-30.

Prehearing Statement of Position.³³ Hu Honua also expressed its willingness to accept any reasonable modification or additional condition(s) the Commission might suggest to ensure these commitments are realized.³⁴

Hu Honua has sufficiently demonstrated its ability and willingness to comply with its carbon negative commitments as detailed in Hu Honua's Carbon Emissions Reduction Commitment and Plan.³⁵ In addition, Hu Honua has offered further supplemental conditions of approval to ensure accountability, including:

- A. Direct oversight and enforcement of carbon commitments by the Commission;³⁶
- B. Submission of documentation demonstrating that it has secured additional acreage on Hawaii Island to provide feedstock for the remaining term of the Amended PPA within sixty months after a final, non-appealable approval;³⁷ and
- C. Proposed a process to identify an independent third-party verifier that would allow the Parties to comment on, and the Commission to approve, the ultimate list of verifiers to be selected by Hu Honua.³⁸

³³See "Division of Consumer Advocacy's Statement of Position," filed on December 21, 2021, at 45-46.

³⁴Hu Honua Post-Hearing Brief at 29.

³⁵See Hu Honua Prehearing Testimony, Exhibit Hu Honua-201.

³⁶Hu Honua Post-Hearing Brief at 29.

³⁷Hu Honua Post-Hearing Brief at 28-29.

³⁸Hu Honua Post-Hearing Brief at 28.

Hu Honua offered, on the record and again in its Post-Hearing Brief, to modify or add any reasonable conditions that would allow for accountability and enforcement of its carbon negative commitments.³⁹

The Majority states that the Project relies on speculative assumptions and unsupported assertions and therefore the GHG analysis is not sufficiently supported. The Majority questions the ability to sequester enough carbon to offset GHG emissions and determine that the plan to purchase offsets has not been sufficiently developed. However, the Majority misses the point that the evidence demonstrates that Hu Honua has agreed to plant significantly more trees than it harvests in order to be carbon negative and reduce emissions - and there is no evidence to the contrary that it will not follow through with its commitment.

The GHG analysis, by design, is based on assumptions and projections 30 years into the future because the Project has not started yet. For that reason, Hu Honua agreed to written

³⁹Hu Honua Post-Hearing Brief at 29. In its Post-Hearing Brief, Hu Honua again clarified the additional issues raised by the Commission and other Parties and Participants and how Hu Honua had already addressed those concerns, including but not limited to, the potential use of invasive species as a feedstock source, Hu Honua's accounting of sequestration of National Forest Foundation trees, local sequestration efforts, Hu Honua's accounting for emissions related to decommissioning, familiarity with reputable carbon offset program, and recipient of payment for procuring sufficient carbon offsets. See id. at 15-17 and Exhibit D (Table of Concerns).

commitments that it would measure the actual emissions and sequestration on an annual basis over the 30-year term as it cannot reasonably know or predict with certainty what the emissions and sequestration will be.

What we do know, however, is that Hu Honua has committed, as a condition of approval, to be carbon negative, increasing the number of new trees it will plant or grow if needed to ensure that more emissions will be sequestered than emitted. To the extent there are any perceived deficiencies with how the Project will quantify and carry out this commitment, Hu Honua agreed to adopt any reasonable assumptions or methodology (for example, changes to its carbon calculator) that the Commission prefers. Given this and the fact that the Majority has not recommended any changes in the assumptions and methodology that would make the analysis sufficient, demonstrates that there will never be an analysis that would be deemed sufficient in the Majority's subjective eyes, nor will there ever be a set of conditions or outcome upon which the Majority would approve this Project.

I believe Applicants have met their burden to show the GHG emissions impacts and also have created a plan that enables them to measure actual conditions over the 30-year term to ensure that emissions will be reduced consistent with Hu Honua's carbon negative commitments.

As noted above, Hu Honua also stipulated to the Commission's continued oversight and agreed to adopt any reasonable conditions imposed by the Commission to ensure accountability and enforcement, yet the Majority has not suggested any conditions that would help to address its concerns.

In terms of potential further commitments, to ensure meaningful carbon sequestration, I would recommend that Hu Honua solicit 3rd party auditors to audit actual emissions each year, instead of every five years. I also would recommend that the input assumptions for any carbon sequestration analyses rely on actual field tests instead of reports and studies in the monitoring and validation phase of the reporting.

Moreover, the Consumer Advocate and Tawhiri both recommended the adoption of Commission conditions, should the Commission approve the amended PPA, which demonstrates that even those Parties agreed that there could be conditions placed upon the Project that would enable PPA approval.

In conclusion, Hu Honua has agreed to adopt any reasonable modifications and or additional conditions ordered by the Commission that will enable the Commission to hold Hu Honua accountable and enforce any conditions of approval, and these examples of additional conditions show that Hu Honua's commitments can be strengthened in simple ways that would help further ensure

that the Project will be carbon negative and GHG emissions will be reduced.

B.

The Costs Under the Amended PPA Are Reasonable
in Light of the Potential for GHG Emissions

In Order No. 37852, as modified by Order No. 37910,⁴⁰ the Commission set forth Issue 3, which asks the Commission to consider:

3. Whether the total costs ~~of energy~~ under the Amended PPA, including but not limited to the energy and capacity costs ~~is~~ are reasonable in light of the potential for GHG emissions.⁴¹

HELCO and Hu Honua correctly note that the Hawaii Supreme Court's remand instructions to the Commission only contemplated consideration of the reasonableness of the Amended PPA cost "in light of the potential for GHG emissions" - i.e., the reasonableness of the cost associated with or

⁴⁰Order No. 37910, "(1) Denying Life of the Land's Motion for Reconsideration/Clarification of Order No. 37852 Filed July 12, 2021; (2) Denying Tawhiri Power LLC's Motion for Reconsideration of Order No. 37852, Filed on June 30, 2021, Filed July 12, 2021; (3) Denying Hu Honua Bioenergy, LLC's Motion for the Commission to Consider Act 82 and Address its Impact on Order No. 37852 Reopening Docket Filed July 20, 2021; (4) Partially Granting the Division of Consumer Advocacy's Motion for Leave to Respond Filed July 23, 2021; and (5) Dismissing All Other Related Procedural Motions," filed on August 11, 2021 ("Order No. 37910"), at 32.

⁴¹Order No. 37910 at 33.

attributable to GHG emissions - and given that GHG emissions will be reduced, as discussed above, there will be a reduction in costs associated with GHG emissions,⁴² given that the "total costs" associated with the Amended PPA have not changed since it was first submitted for approval, and which the Commission found to be reasonable in its 2017 D&O.

The Majority's conclusion that the "total costs" under the Amended PPA are unreasonable rests on their position that the costs of the Amended PPA should be assessed "as a whole, without specific emphasis on any particular component, such as the 'energy charge,'" and that HRS § 269-6(b) requires the Commission to determine the "reasonableness of costs of utility system capital improvements and operations," including the Amended PPA's "total costs."⁴³ However, such issues, including those related to "energy charges" were never raised on appeal or considered by the Hawaii Supreme Court in HELCO I or HELCO II. The Hawaii Supreme Court only focused on the GHG emissions component of HRS § 269-6(b) and the only type of cost addressed by

⁴²The Hawai'i Supreme Court in HELCO I and HELCO II did not address "total costs," "energy and capacity costs," or any other cost considerations not directly related to "the potential for GHG emissions." See generally HELCO I and HELCO II.

⁴³Order No. 37936, "Denying Hu Honua Bioenergy LLC's Motion for Reconsideration of Order No. 37910, Issued August 11, 2021, Filed August 23, 2021," filed on August 27, 2021, at 10-12 (emphasis in original).

the Hawaii Supreme Court were the “hidden and long-term costs” associated with GHG emissions. Because of this background, I respectfully submit that the Majority’s decision to consider the “total costs” associated with the Amended PPA is in error and contrary to the remanded scope of HELCO I and HELCO II.

IV.

THE COMMISSION SATISFIED ITS CONSTITUTIONAL OBLIGATIONS WITH RESPECT TO LOL’S RIGHT TO A CLEAN AND HEALTHFUL ENVIRONMENT, AS DEFINED IN HRS CHAPTER 269

The Commission should not be considering other non-GHG related environmental impacts, absent a reasonable nexus between the threatened harm and the Project. No Party or Participant has demonstrated such nexus.⁴⁴ The evidence, including LOL’s own testimonies and exhibits, demonstrate that LOL fails to meaningfully explain any connection between the Project and the harm to various environmental resources that they allege. Therefore, the purported non-GHG related environmental concerns raised by LOL, as well as Tawhiri and the Consumer Advocate, should have had no bearing on the Commission’s review of the Amended PPA. The record for this proceeding clearly demonstrates that LOL was given a full opportunity to cross-examine all witnesses at the Evidentiary Hearing and submit various briefs,

⁴⁴See In re Maui Elec. Co., Ltd., No. SCOT-21-0000041, filed on March 2, 2022, at 3-4 and 17-19.

motions, and information requests in connection with its property interest in a clean and healthful environment as defined by HRS Chapter 269 (and as contemplated by the Court in HELCO I).⁴⁵ Notwithstanding, LOL declined to direct any questions to Hu Honua's GHG witnesses, including Dr. Weaver, Braulio Pikman, and Joshua Pearson, regarding Hu Honua's Project GHG analysis.⁴⁶ LOL also declined to direct any questions to HELCO's GHG witnesses, including Dr. Kirchofer and Karen Kimura, regarding HELCO's Avoided Emissions GHG Analysis.⁴⁷

⁴⁵See HELCO I, 145 Hawai'i at 17, P.3d at 689 ("[T]he private interest to be affected is LOL's right to a clean and healthful environment, which 'includes the right that explicit consideration be given to reduction of [GHG] emissions in Commission decision-making, as provided for in HRS Chapter 269.'").

⁴⁶Recording of Hearing, Hearing Day 2, March 2, 2022, at 4:06:14-4:06:17; ROH, Hrg. Day 3, March 3, 2022, 1:01:27-1:01:31; ROH, Hrg. Day 3, March 3, 2022, 1:07:35-1:07:39 (stating that LOL did not have questions for Dr. Weaver, Mr. Pikman, and Mr. Pearson, respectively).

⁴⁷See Testimony of Abigail Kirchofer, Recording of Hearing, Hearing Day 2, March 2, 2022, at 2:23:38-2:24:31 (directing a few questions to Dr. Kirchofer about topics other than HELCO's Avoided Emissions GHG Analysis); Hearing Day 2, March 2, 2022, at 2:01:26-2:01:29 (stating that LOL did not have questions for Ms. Kimura). Although LOL was provided with the opportunity to question all of Hu Honua's witnesses, LOL only questioned Warren Lee, Hu Honua President (see Testimony of Warren Lee, Recording of Hearing, Hearing Day 2, March 2, 2022, at 6:58:52-7:16:32), and declined to question Hu Honua's remaining witnesses.

V.

CLOSING

The evidence clearly establishes that the Applicants have met their burden of showing that the Project will result in a significant reduction in GHG emissions over the course of the 30-year Amended PPA term (see Issues 1, 1.a, and 2), and consequently, that the costs of the Amended PPA are reasonable in light of the potential for GHG emissions (see Issue 3). The Project is 99% complete, consistent with this Commission's previous indication to Hu Honua that further extensions to complete the Project would not be given.⁴⁸

⁴⁸Upon the Commission's 2017 approval of the Project, the Commission instructed that it expected Hu Honua and HELCO to "make all reasonable attempts to complete the project according to this schedule and [did] not expect future requests to extend the Commercial Operation Date deadline." See 2017 D&O at 61.

The Commission's decision not only prejudices Hu Honua, but also deprives the community of the benefits that could be realized from the Project, which would provide for the replacement of existing firm dispatchable fossil fuel generation and grid services with Hu Honua's firm dispatchable renewable energy and grid services.

DONE at Honolulu, Hawaii MAY 23, 2022.

PUBLIC UTILITIES COMMISSION
OF THE STATE OF HAWAII

By _____
Leodoloff R. Asuncion, Jr., Commissioner

2017-0122.ljk

CERTIFICATE OF SERVICE

The foregoing Order was served on the date it was uploaded to the Public Utilities Commission's Document Management System and served through the Document Management System's electronic Distribution List.

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COMMISSION

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